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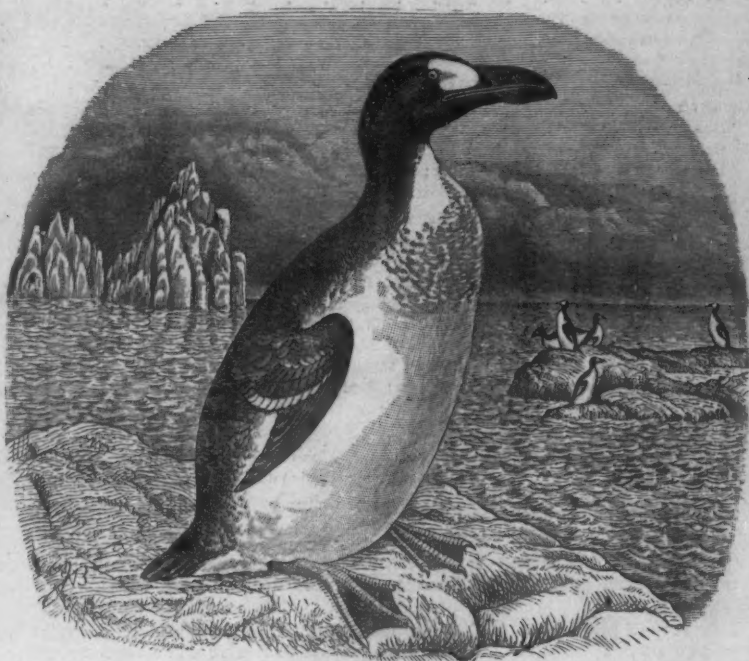
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EVERTSON, LITH.

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KETTERLINUS, PHILADA.

MEGASCOPS VINACEUS BREWST. MEGASCOPS ASPERSUS BREWST.
CHIHUAHUA SCREECH OWL. SPOTTED SCREECH OWL.
ADULT FEMALE. ADULT FEMALE.

THE AUK:
A QUARTERLY JOURNAL OF
ORNITHOLOGY.

VOL. VIII.

OCTOBER, 1891.

No. 4.

JUNE BIRDS OF CÆSAR'S HEAD, SOUTH CAROLINA.

BY LEVERETT M. LOOMIS.

THIS PAPER is supplementary to the one relating to Mt. Pinnacle and vicinity,* presenting the results of a further study of the bird fauna of the Alpine Region of South Carolina.

Of the various spurs of the Blue Ridge extending across the northern boundary of the State into the counties of Greenville, Pickens, and Oconee, Cæsar's Head, in the northwestern corner of Greenville, appeared to afford the best field for the continuance of my earlier investigations. Accordingly I visited this mountain on the 26th of May and resided there until the 4th of July, making the hotel on the summit the base of my operations. The interval of my stay covered the flood tide of the breeding season.

The altitude of Cæsar's Head is but little less than that of Mt. Pinnacle. The height of the ridge of the roof of the hotel above the average sea level is given as 3118 feet by the U. S. Coast and Geodetic Survey. The highest point is about a hundred feet higher.

Cæsar's Head on the north and east is bounded by the Middle

* Auk, Vol. VII, pp. 30-39, 124-130.

Saluda Valley—a deep, narrow gorge, rising on the farther side to the crest of the Saluda Mountains proper, along which runs the tortuous State line on a divide that a little farther on separates waters tributary to the Mississippi and the Atlantic. On the west and southwest Mather's Creek, an affluent of the South Saluda, forms a boundary. To the south the main stream, after its confluence with the creek, skirts the base of an outlying extension of the mountain. The whole eminence is about six miles in length and from one to one and a half miles in width.

The summit of Cæsar's Head is a narrow watershed, reaching northwest to the North Carolina line near Jones's Gap, with several lateral ridges branching off in the direction of the Middle Saluda. These ridges, in turn, are cut up into numerous smaller ones by hollows, each with its brook of clear water. The minor ridges terminate in bluffs and cliffs. The intervening hollows also end abruptly, the little rills being precipitated over walls of rock. This whole region abounds in pellucid streamlets and springs of cold water, one of the latter being far-famed as the 'cold spring.' On the top of the lateral ridges there is much fairly even ground—several hundred acres at least.

The ascent to the hotel from the south side is made by means of the Cæsar's Head Turnpike, which winds upward for about six miles. The summit gained, the road pursues the main ridge, finally crossing the Middle Saluda and joining the Jones's Gap Turnpike, which follows the course of the stream from the country below, entering North Carolina through Jones's Gap. In riding over this ridge road—a verdant arcade in the summer season—the traveler does not realize that he is on the summit of a mountain except at a single point where a ravine, leading up from the Middle Saluda, cuts deep into the backbone of the ridge, opening a vista into the valley, and revealing the ranges beyond. To the northward of Cæsar's Head mountains succeed mountains as far as the eye can reach, but to the southward the landscape of the lower country is overlooked, presenting a widespread panorama of woods and fields, fading away into the hazy blue of the distant horizon.

The name, Cæsar's Head, has its origin in a fancied resemblance to a human face, in profile, of a crag (the Head) facing to the southward on the highest point. Table Rock and Mt. Pinnacle stand out boldly to the southwest. The distance—air

measurement—to the precipice on the former is said to be but five and a quarter miles, though quite a day's journey by mountain roads. At the foot of the Head are the Dismal Mountains, or Dismals—ridges in a sort of basin, surrounded on all sides by mountains, except the south, where Mather's Creek escapes to join the South Saluda. Owing to its sheltered situation and southern exposure the place is noted for being the warmest spot about the mountains. In cold weather it is a favorite resort for cattle.

The mountains of this immediate region are forest-clad from base to summit. The growth is almost entirely deciduous. At the top of Cæsar's Head, particularly on the ridges, the trees do not attain great size. On the sides, however, there is much fine timber. The chestnut is perhaps the most characteristic tree of the region. Toward the end of June it was in full bloom, and a fair idea of its abundance could be had from the overlooking heights—the patches of yellowish appearing in marked contrast with the dark green of the other foliage. On the Middle Saluda there are considerable groups of hemlocks, but only an occasional one is to be found in the hollows at the summit. Unlike the rare *Tsuga caroliniana*, it is confined to the streams. The former occurred on two of the cliffs growing in the scanty soil on the very verge. On the summit the kalmia was in full bloom on my arrival, but the rhododendron did not blossom until nearly a month later, though in flower at the foot. Huckleberries, which abound on many of the ridges, began to ripen after the middle of June. Owing to the custom of periodically burning off these mountains to afford range for stock to the settlements below, the woods in many places present a park-like appearance, often so free from undergrowth as to suggest their having been thinned by the axe. That the pasturage is good is abundantly shown in the sleek red cattle, their Devon ancestry being apparent at a glance. There are only a few clearings—little patches, now or formerly tilled, in miles of unbroken forest. Around the hotel there are about twenty acres of open ground, in lawn, garden, and pasture. The hotel was established in 1837, and has since been the most noted mountain resort in the State.

Of the collateral fauna I have little of relevance to record. The chickaree, known hereabouts as the 'mountain boomer, was not met with, and my inquiries with regard to it uni-

versally elicited the information that it was restricted to the higher mountains some distance on the other side of the line. In the 'catamount,' which was said to be of rare occurrence, was recognized the Canada lynx. The ground squirrel was abundant and generally distributed. The ground hog was not seen, but it was stated to be common. Judging from my own experience, the rattlesnake is one of the most numerous of the Ophidia of the locality. In the Middle Saluda and Mather's Creek speckled trout were abundant—one fisherman taking twenty-nine in a single afternoon at the end of June.

The first four weeks of my sojourn it rained somewhere in the vicinity every day. Over a week of the time the mountains were constantly enveloped in clouds. Notwithstanding the unpropitious state of the weather I was out every day, extending my observations for several miles in various directions, and down to about 2000 feet on the Middle Saluda and Mather's Creek. In working from the top downward an opposite method was pursued from that followed at Mt. Pinnacle. Owing to the more table-like character of the summits and the consequent better opportunities for observation, and also to the near proximity of my former work, it was deemed best to restrict my efforts to the zone above mid-elevation. It should be borne in mind therefore that the notes which follow relate only to the belt above 2000 feet, particularly to the summit. Where simply corroborative of the former article the annotations have been abridged in order not to consume unnecessary space. The lack of open ground accounts for the absence of field birds irrespective of climatic or other conditions.

1. *Colinus virginianus*. BOB-WHITE. 'PARTRIDGE.'—Common in the open park-like woods and about the little clearings. Before the arrival of the summer guests their call-notes were heard frequently from the lawn close by the hotel piazza.

2. *Bonasa umbellus*. RUFFED GROUSE. 'PHEASANT.'—While these birds are really common in these mountains, yet, from the nature of their haunts in the early summer season, they readily escape observation. Unless the dense undergrowth bordering the branches in the hollows and the swampy thickets at the heads of the larger streams be diligently hunted, several weeks might be spent rambling about the mountains without a single Pheasant being encountered. They lie so closely, too, that without a dog, even in these retreats, many would be passed unno-

ticed. One day two were flushed from a cluster of rhododendrons within twenty steps of an open spot where I had been resting under a tree, from which a Towhee had been shot a few minutes before. The report of the gun had been unheeded, the birds rising only when I started in their direction in pursuit of a Chestnut-sided Warbler. It is well-nigh impossible to get a shot in the places they frequent unless one is ready to press the trigger the instant they are a-wing. By the end of June they seemed to become more generally distributed, solitary birds being found on the ridges. Emancipation from the care of the nest and the tempting flavor of the ripening huckleberries doubtless encourage wider dispersion, at least on the part of the old males. Young, as large as Bob-whites and under the care of the parent birds, were noted by the middle of June. I did not hear the 'drumming' of the males during the time of my stay. A gentleman, stopping at the hotel, informed me of the presence and occasional capture of this species in the 'flat woods' of Abbeville County. Its range in the Piedmont Region appears to be nearly or quite coextensive with that of the ground squirrel.

3. *Meleagris gallopavo*. WILD TURKEY.—But few 'turkey signs' were seen. From what was learned, it appears that their bands are considerably thinned. I was told of one hunter who had taken thirty the past season, and of another who had secured five at one fire. Bating a trench is said to be the favorite method for their extermination.

4. *Cathartes aura*. TURKEY VULTURE. 'BUZZARD.'—Individuals observed daily soaring over the mountain tops.

5. *Buteo borealis*. RED-TAILED HAWK.—Tolerably common. The Duck Hawk, or 'Squirrel Hawk' as locally called, is reported to breed commonly, a pair at one time having a nest in the cliff at the Head. The Bald Eagle was also mentioned as occurring. As almost my entire time was spent in woods where there was no opportunity for outlook, but scanty knowledge was gained of the Falconidæ.

6. *Coccyzus americanus*. YELLOW-BILLED CUCKOO. 'RAIN CROW.'—Found about the hotel and elsewhere at the summits, but it was apparently not very common at these highest altitudes.

7. *Ceryle alcyon*. BELTED KINGFISHER.—Only upon one occasion was the Kingfisher's rattle heard, June 12, in the valley of the Middle Saluda from a cliff above.

8. *Dryobates villosus audubonii*. SOUTHERN HAIRY WOODPECKER.—While not strictly typical, the specimens taken are nearer *audubonii* than *villosus*, and in consequence the Hairy Woodpecker of the crest of the mountains is referred to the subspecific form. This Woodpecker is rather common.

9. *Dryobates pubescens*. DOWNY WOODPECKER.—This species was the commonest member of the family met with.

10. *Ceophloeus pileatus*. PILEATED WOODPECKER. 'WOOD HEN.'—Common, and unusually tame. Sometimes one would alight quietly on the trunk of a tree within twenty yards of a place where I would be sitting, and peer cautiously from the further side very much as the inquisitive Red-head does, though without the latter's volubility.

11. *Colaptes auratus*. FLICKER.—Only a few were observed, these about the clearings and in the open woods.

12. *Chætura pelagica*. CHIMNEY SWIFT.—Every day they were seen about the openings and above the tree tops of the unbroken forest.

13. *Trochilus colubris*. RUBY-THROATED HUMMINGBIRD. 'HUMMINGBIRD.'—Common, alike in the dark, heavily-wooded ravines and on the sunny ridges about the hotel.

14. *Myiarchus crinitus*. CRESTED FLYCATCHER.—Preferred the more open places in the woods. Common.

15. *Sayornis phœbe*. PHEBE. 'GNATCATCHER.'—A pair had a nest containing eggs over a door in one of the hotel piazzas on my arrival, May 26. I was told that a brood had already been reared by these birds, and that the nesting site was one that had been used for a number of years. At the summits this species was found only in situations exposed to the sun, as about the cliffs and in the little fields.

16. *Contopus virens*. WOOD PEWEE.—The Wood Pewee was one of the commoner birds of the locality. Young-of-the-year, strong of wing, were noted from the outset.

17. *Empidonax acadicus*. ACADIAN FLYCATCHER.—The altitude of about 2500 feet appeared to limit their vertical range. Along the Middle Saluda they were common; this stream affording an avenue from the foot of the mountains.

18. *Cyanocitta cristata*. BLUE JAY.—Rather irregularly distributed and not very common.

19. *Corvus corax*——. RAVEN.—The croak of the Raven is a familiar sound at the crest of these mountains, a day scarcely passing without one or more being seen or heard. The cliffs on Cæsar's Head and the neighboring heights are said to be nesting places. Their attachment to one of these inaccessible crags as a breeding-place has given the name Raven Cliff Falls to a beautiful cascade, where a tributary of the South Saluda makes its descent into the Dismal Mountains. In May a pair continually harassed the turkeys at the hotel, robbing their nests of eggs, and later preying upon the young. The coming of the summer visitors caused them to give the hotel and its immediate surroundings a wider berth. A narrow 'leading' ridge, however, near by, separating two deep valleys, continued a favorite crossing-point, and a stand taken there and patient watching would certainly have been rewarded by a fair shot, but the necessary time could not be spared from other field work, which is to be regretted, as the subspecific status of the Raven of the Carolina mountains yet remains a mooted point.

20. *Corvus americanus*. AMERICAN CROW.—The crow was not common. The presence of the Raven and the absence of open ground probably account for its scarcity.

21. *Spinus tristis*. AMERICAN GOLDFINCH. 'LETTUCE-BIRD'.—Frequented chiefly the clearings and the open woodlands, where they were tolerably common.

22. *Spizella socialis*. CHIPPING SPARROW.—Shunned the densely wooded situations, but were common elsewhere.

23. *Spizella pusilla*. FIELD SPARROW.—There was not enough unwooded ground to render them abundant, but every cleared or partially cleared spot was occupied by these persistent songsters. Their notes were mainly normal. After nightfall an occasional song broke the stillness.

24. *Pipilo erythrophthalmus*. TOWHEE. 'JOE-REE.'—The song of the Towhee was one of the most characteristic in the chorus of bird voices about the hotel grounds. To the close of my stay they sang with unabated energy. They were decidedly common, being generally distributed on the edges of the openings and in the scrubby undergrowth among scattered trees. One was shot on the rocks at the 'head' and fluttered over the cliff. Young birds well able to fly were abroad on my arrival. A second brood appears to be habitually reared. One of the specimens procured exhibited a tendency to albinism in numerous white feathers on the occiput and the back and side of the neck.

25. *Cardinalis cardinalis*. CARDINAL. 'REDBIRD.'—Rather common, particularly about the streams. Its clear and inspiring whistle frequently greeted the ear from the trees on the lawn. Its occurrence above 3000 feet extends its vertical range at least 500 feet higher than recorded at Mt. Pinnacle.

26. *Passerina cyanea*. INDIGO BUNTING.—Like a number of other species, this bird principally affected the openings and locations where the timber was sparse. It was common.

27. *Piranga erythromelas*. SCARLET TANAGER.—Except on the ridges leading northeast from the hotel, the Scarlet Tanager was everywhere common. Curiously enough these ridges seemed to be avoided, though without apparent reason. The males continued to sing, with undiminished fervor, up to the day of my departure. They were very shy at first, but as the season advanced they grew tamer. Golden Weaver is their local name, an appellation more appropriate to the Baltimore Oriole.

As at Mt. Pinnacle, the Summer Tanager was not met with at the higher elevations.

28. *Ampelis cedrorum*. CEDAR WAXWING.—A male was secured from a company of half-a-dozen at the headwaters of a branch of the South Saluda, June 22. Four days later two other males and a female were obtained from another little band on the Middle Saluda near its source.

29. *Vireo olivaceus*. RED-EYED VIREO.—Of all the feathered tenants of these mountain forests, this one, by far, was the most abundant. In the persistency of its vocal efforts it scarcely had a rival.

30. *Vireo flavifrons*. YELLOW-THROATED VIREO.—At the higher elevations, uncommon. One sang at times through June from the shade-trees within the hotel inclosure.

31. *Vireo solitarius alticola*. MOUNTAIN SOLITARY VIREO.—In the territory under consideration, this Vireo, in its typical form, was common and evenly distributed. It was found both in the ravines and on the ridges, and in shaded situations as well as sparsely wooded ones. Evergreen and deciduous trees were alike frequented. The males were con-

spicious songsters. With the progress of June the season of song considerably waned, much of their singing being fitful. A musical contest, between two rivals, June 27, was not wanting, however, in the early vigor. The song varied in individuals, the more gifted performers excelling in the variety of their notes. An air of entire absorption characterizes the execution of these sedate musicians. They often appear to be oblivious of the presence of a listener—seemingly lost in the ecstasy of their own vocalization. The minor notes are peculiar—those of the young, which are uttered incessantly when the parents are taken, being striking and indescribable sounds. It was noticed that the males frequently began to sing when their haunts were invaded, and that they occupied the most exposed perches, usually dead limbs, and seemed anxious to attract attention to themselves and to decoy the intruder away from the spot. The female and the young, for family groups were large the first week of June, in the meantime would keep concealed in the thick foliage, eluding casual observation. Sometimes the report of the gun or the ruse of sucking the back of the hand would start the males to singing. As a rule this Vireo is confiding rather than shy. One bird—about a fortnight from the nest—was so unsophisticated as to come within touch of my gun, and peer curiously for several moments, until frightened away, at the strange object that had so suddenly appeared. Birds-of-the-year with fully developed wings were shot on the 9th of June. But a single brood appears ordinarily to be raised, for the organs of reproduction displayed constant degeneration from the outset.

The assertions previously made (Auk, Vol. VII, p. 126; VIII, 169) as to the coloration of the upper parts and the dark color, in adults, of the under mandible are fully sustained in a supplementary series of twenty-nine specimens—twenty-two males, three females, four hornotines. Fresh colors of the lower mandibles of these examples, recorded in the field, are as follows: 'plumbeous-black,' (ad. ♂); 'plumbeous-black, base with stronger indications of plumbeous' (ad. ♀); 'plumbeous, blackening at tip' (♂, ♀ juv.).

DIMENSIONS (in inches).

Sex	Length	Extent	Chord of Wing	Chord of Exp. Culmen
♂	6.00	10.10	3.22	.47
♂	5.95	10.00	3.16	.47
♂	5.95	10.00	3.15	.47
♂	5.95	9.80	3.12	.47
♂	5.95	9.80	3.10	.48
♂	5.90	10.00	3.18	.44
♂	5.90	10.00	3.15	.44
♂	5.90	9.80	3.10	.47
♂	5.90	9.80	3.09	.46
♂	5.90	9.80	3.05	.47
♂	5.90	9.80	3.04	.43
♂	5.85	9.70	3.05	.43

Sex	Length	Extent	Chord of Wing	Chord of Exp. Culmen
♂	5.80	10.00	3.17	.47
♂	5.80	9.90	3.15	.44
♂	5.80	9.90	3.14	.46
♂	5.80	9.90	3.12	.45
♂	5.80	9.90	3.10	.49
♂	5.80	9.50	2.98	.47
♂	5.75	9.90	3.13	.44
♂	5.70	10.00	3.18	.44
♂	5.70	9.80	3.11	.43
♂	5.65	9.60	3.01	.43
♀	5.95	10.00	3.16	.44
♀	5.90	9.80	3.10	.43
♀	5.65	9.70	3.05	

32. *Mniotilta varia*. BLACK-AND-WHITE WARBLER.—A very common inhabitant of these mountains.

33. *Helminthophila vermivorus*. WORM-EATING WARBLER.—Along the branches and on the shady hillsides and ridges, very common. Young, hardly able to fly, were noted as late as the 29th of June. The males sang on into July.

34. *Helminthophila chrysoptera*. GOLDEN-WINGED WARBLER.—Detected only at the head of the Middle Saluda where it crosses the Cæsar's Head Turnpike, at an altitude of about 2500 feet. Here a colony had been established in a sunny spot among the rhododendrons and kalmias fringing the stream and on the adjoining bush-grown hillside. Young birds were caught in the hand June 19.

35. *Compsothlypis americana*. PARULA WARBLER.—Though not as abundant as at the lower elevations, still it was common. Confined to the hollows.

36. *Dendroica pensylvanica*. CHESTNUT-SIDED WARBLER.—This Warbler is very common in this locality. It haunts the shrubbery of the streams, especially in the neighborhood of borders having sun exposure. Several pairs made their home in a little dell at the foot of the hotel lawn, where a number of bold springs mingled their cold rock waters in a quiet brooklet that meandered through rhododendron shades until it leaped into the sunlight over a crag to the valley below. The young were on wing the second week of June. There was no pause in the song season.

37. *Dendroica virens*. BLACK-THROATED GREEN WARBLER.—June 3 I followed one of the long wooded ridges extending northeast from the hotel to a cliff overlooking the valley of the Middle Saluda. As I stood on this rocky bluff, the songs of several Black-throated Green Warblers, rising above the sound of falling water, came from the billowy green a thousand feet below. This was the first intimation I had of the presence of this bird, for a week spent in exploring the ground nearest to the hotel had not revealed it. Several excursions were made into this valley, and these Warblers were found to be common along the main stream and its tribu-

taries at an elevation of about 2000 feet. Stragglers were observed several hundred feet higher. Nowhere else were they met with except at about the same altitude on Mather's Creek. It is remarkable that this bird should shun the higher ground, and occur only on the water courses leading up from the country below. This peculiar distribution is not to be explained on the score of temperature; for the cool deep gorge on the north side differed widely in this respect from the hot cove, walled in on every hand, except the south, by precipitous mountains. Neither does this restriction of range appear to be accounted for by floral considerations; as this species was not found among the hemlocks toward the source of the Middle Saluda, nor was it limited to the places where these evergreens most abound. All this witnesses that the boreal character of the fauna of this region is imparted by the combined influence of the mountains and not by mere vertical position on the peaks and ridges; and that this paramount influence is modified, as where latitude is involved, by auxiliary agencies, the result being local distribution. They were exceedingly shy. The testes of a male examined June 17 were fully developed. Their singing suffered no abatement during the interval of my sojourn.

38. *Dendroica vigorsii*. PINE WARBLER.—Two males, in full song, were noted June 29 on a piny ridge between the Dismals and South Saluda well up to 3000 feet. This was the only locality visited where there were other than isolated pines. The occurrence of this evergreen in bodies appears to determine the upward range of this Warbler, which affords a striking exemplification of floral influence upon local distribution.

39. *Seiurus aurocapillus*. OVEN-BIRD.—Abundant on the ridges and hillsides. Young were well on wing June 10. By the second week of June there began to be a falling off in song, though the voices of the singers remained strong to the last.

40. *Seiurus motacilla*. LOUISIANA WATER-THRUSH.—Not as plentiful on these summits as at the lower levels on Mt. Pinnacle. The adults apparently migrated about the middle of June.

41. *Geothlypis formosa*. KENTUCKY WARBLER.—An abundant bird of the spring branches and larger streams. In the 'Observations' upon the summer mountain birds of Pickens (Auk, Vol. VII, p. 129) a nuptial song was spoken of. This was heard a number of times the past season, thrice one cloudy day at a water-fall on the Middle Saluda—the sweet wild notes rising above the fall of the water, brightening for a moment the deepened shade of the rhododendrons and hemlocks. The parents were extremely solicitous for their offspring, the sounds made by the lips on the back of the hand driving them nearly frantic with anxiety. Oven-birds were similarly affected.

42. *Icteria virens*. YELLOW-BREASTED CHAT. 'MOCKINGBIRD'.—Prominent in the vicinity of running water away from shaded situations.

43. *Sylvania mitrata*. HOODED WARBLER.—Although reaching the highest spring heads, it occurs but sparingly above 2500 feet. Common below this height on the Middle Saluda.

44. *Galeoscoptes carolinensis*. CATBIRD.—A few were met with about openings along the Cæsar's Head Turnpike in the vicinity of the Middle Saluda.

45. *Harporhynchus rufus*. BROWN THRASHER. 'THRASHER.'—Were not very common. Several pairs had their abode at the very top of the mountain about the hotel and the Head, above 3000 feet.

46. *Thryothorus ludovicianus*. CAROLINA WREN.—Universally distributed, finding congenial habitation in all sorts of locations; very common.

47. *Thryothorus bewickii*. BEWICK'S WREN.—An adult male was shot June 4, while singing, at the hotel. Two days before, at a little lower elevation over a mile away, a family group was seen at a cabin in a cultivated field. They remained on the premises to the close of my visit.

48. *Sitta carolinensis*. WHITE-BREASTED NUTHATCH.—The White-breasted Nuthatch is a common and generally distributed species throughout this region.

49. *Parus bicolor*. TUFTED TITMOUSE.—Abundant, ranging everywhere over these highlands.

50. *Parus carolinensis*. CAROLINA CHICKADEE. 'TOM-TIT.'—Rather less numerous than the Tufted Titmouse, but equally ubiquitous.

51. *Turdus mustelinus*. WOOD THRUSH. 'NIGHTINGALE.'—Common, but singularly shuns some portions of the locality. In the neighborhood of the hotel it was the leading voice in the daily concert. Rather shy.

52. *Sialia sialis*. BLUEBIRD.—Every suitable situation was occupied by one or more family gatherings.

LIST OF BIRDS COLLECTED ON THE BAHAMA ISLANDS BY THE NATURALISTS* OF THE FISH COMMISSION STEAMER *ALBATROSS*.

BY ROBERT RIDGWAY.

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I. ABACO.

1. *Mimocichla plumbea* (Linn.).—12 specimens, March 26 to April 7.
2. *Mimus polyglottos elegans* (Sharpe) ?†—1 specimen, March 26.

* Mr. James E. Benedict, in charge, assisted by Mr. Willard Nye, Jr., Mr. Charles W. Townsend, Mr. Thomas Lee, and Prof. L. F. Washburne.

† *Mimus elegans* Sharpe, Cat. B. Br. Mus. Vol. VI, 1881, 339. So far as the white on the primaries is concerned, this specimen is not distinguishable from true *M. polyglottos*, which is also the case with an example from Inagua, collected by Dr. Bryant. *M. elegans* cannot, therefore, if these specimens are really the same bird, be separated by the ascribed characters, even as a local race; and I have strong doubts as to its validity, unless smaller bill alone may be deemed sufficient to justify its separation.

3. *Galeoscoptes carolinensis* (Linn.).—5 specimens, March 27 to April 7.
4. *Polioptila cærulea* (Linn.).*—11 specimens, March 25 to April 6.
5. *Helmitherus vermivorus* (Gmel.).—1 specimen, March 3.
6. *Helminthophila pinus* (Linn.).—1 specimen, April 7.
7. *Dendroica tigrina* (Gmel.).—4 specimens, March 26 to April 7.
8. *Dendroica coronata* (Linn.).—2 specimens, March 2 to April 2.
9. *Dendroica vigorsii* (Aud.).—1 specimen, April 1.
10. *Dendroica discolor* (Vieill.).—6 specimens, April 2 to 7.
11. *Dendroica palmarum* (Gmel.).—1 specimen, April 2.
12. *Geothlypis trichas* (Linn.).—6 specimens, March 25 to April 12.
13. *Geothlypis tanneri* Ridgw.†—4 specimens, March 27 to April 6.
14. *Seiurus aurocapillus* (Linn.).—3 specimens, March 27 to April 13.
15. *Seiurus noveboracensis* (Gmel.).—1 specimen, April 5.
16. *Cœreba bahamensis* (Reich.).—9 specimens, March 25 to April 7.
17. *Callichelidon cyaneoviridis* (Bryant).—1 specimen, April 10.
18. *Vireo crassirostris* (Bryant).—13 specimens, March 25 to April 7.
19. *Spindalis zena townsendi* Ridgw.‡—11 specimens, March 25 to April 7.
20. *Pyrrhulagra violacea* (Linn.).—8 specimens, March 26 to April 5.
21. *Euetheia bicolor* (Linn.).—3 specimens, March 26 to April 6.
22. *Ammodramus sandwichensis savanna* (Wils.).—1 specimen, April 1.
23. *Agelaius phœniceus bryanti* Ridgw.§—2 specimens, March 26 to April 5.
24. *Pitangus bahamensis* Bryant.—3 specimens, April 1 to 7.
25. *Myiarchus sagræ* (Gundl.).—7 specimens, March 25 to April 7.
26. *Contopus bahamensis* (Bryant).—1 specimen, March 27.
27. *Sporadinus ricordi* (Gerv.).—42 specimens, March 25 to April 7.
28. *Doricha evelynæ* (Bourc.).—10 specimens, March 25 to April 7.
29. *Dryobates villosus maynardi* Ridgw.||—6 specimens, March 31 to April 7.
30. *Centurus blakei* Ridgw.¶—17 specimens, March 27 to April 7.
31. *Falco columbarius* Linn.—2 specimens, April 5 to 7.
32. *Columbigallina passerina bahamensis* (Mayn.).**—3 specimens, April 3.
33. *Hæmatopus palliatus* Temm.—2 specimens, April 3.

* Some of the specimens inclining toward *P. c. cæsiogaster* (Ridgw. Man. N. Am. B. 1887, p. 569), one of them nearly typical of that form.

† Cf. The Auk, Vol. III, July, 1886, p. 335.

‡ Cf. Proc. U. S. Nat. Mus., Vol. X, 1887, p. 3.

§ Cf. Man. N. Am. B., 1887, p. 370.

|| Cf. Man. N. Am. B., 1887, 282. (*Picus insularis* Mayn., 1885, nec Gould, 1862.)

¶ Cf. The Auk, Vol. III, July, 1886, p. 337.

** *Chamapelia bahamensis* Mayn., Am. Exchange and Mart, III, No. 6, Feb. 5, 1887, p. 69.

34. *Ardea rufescens* Gmel.—1 specimen, April 3.
35. *Ardea 'pealei'* Bonap.—2 specimens, April 3.
36. *Ardea virescens bahamensis* (Brewst.).*—1 specimen, April 3.
37. *Nycticorax nycticorax nævius* (Bodd.).—1 specimen, April 3.
38. *Fulica americana* Gmel.—1 specimen, April 3.
39. *Dafila bahamensis* (Linn.).—1 specimen, (alcoholic, no date).
40. *Phaëthon flavirostris* Brandt.—1 specimen, April 5.

II. NEW PROVIDENCE.

1. *Turdus mustelinus* Gmel.—1 specimen, April 16.
2. *Mimocichla plumbea* (Linn.).—2 specimens, March 19.
3. *Mimus gundlachi* Cab.—1 specimen, March 19.
4. *Galeoscoptes carolinensis* (Linn.).—1 specimen April 15.
5. *Polioptila cærulea cæsiogaster* Ridgw.†—6 specimens, March 19 to April 17.
6. *Mniotilta varia* (Linn.).—6 specimens, March 19 to April 16.
7. *Helmitherus vermivorus* (Gmel.).—3 specimens, March 23 to April 16.
8. *Compsothlypis americana* (Linn.).—3 specimens, April 15 and 16.
9. *Dendroica tigrina* (Gmel.).—7 specimens, March 19 to April 16.
10. *Dendroica petechia gundlachi* (Baird).—1 specimen, March 19.
11. *Dendroica cærulescens* (Linn.).—2 specimens, April 10.
12. *Dendroica striata* (Forst.).—3 specimens, April 1 to 29.
13. *Dendroica dominica* (Linn.).—1 specimen, April 15.
14. *Dendroica vigorsii* (Aud.).—2 specimens, April 17 to 19.
15. *Dendroica discolor* (Vieill.).—7 specimens, March 18 to April 16.
16. *Dendroica palmarum* (Gmel.).—8 specimens, March 19 to April 16.
17. *Geothlypis trichas* (Linn.).—4 specimens, March 19 to April 16.
18. *Geothlypis rostrata* Bryant.—1 specimen, March 19.
19. *Seiurus aurocapillus* (Linn.).—7 specimens, March 18 to April 16.
20. *Setophaga ruticilla* (Linn.).—9 specimens, March 18 to April 16.
21. *Cœreba bahamensis* (Reich.).—4 specimens, March 19 and 20.
22. *Vireo altiloquus barbatulus* (Cab.).—3 specimens, April 21 to 29.
23. *Vireo crassirostris* (Bryant).—11 specimens, March 19 to April 18.
24. *Spindalis zena* (Linn.).—20 specimens, March 18 to April 15.
25. *Pyrrhulagra violacea* (Linn.).—11 specimens, March 19 to April 16.
26. *Euetheia bicolor* (Linn.).—3 specimens, March 19.
27. *Pitangus bahamensis* Bryant.—4 specimens, March 19 to April 18.
28. *Myiarchus sagræ* (Gundl.).—7 specimens, March 18 to April 16.
29. *Contopus bahamensis* (Bryant).—1 specimen, April 15.
30. *Doricha evelynæ* (Bourc.).—5 specimens, April 15.
31. *Dryobates villosus maynardi* Ridgw.—2 specimens, March 18 and 19.
32. *Crotophaga ani* Linn.—1 specimen, March 19.

* *Ardea bahamensis* Brewst., Auk, Vol. V, Jan. 1888, p. 83.

† Cf. Man. N. Am. B., 1887, p. 569.

33. *Saurothera bahamensis* Bryant.—4 specimens, March 19 to Apr. 29.
34. *Zenaida zenaida* (Bonap.).—1 specimen, April 15.

III. ELEUTHERA ISLAND.

1. *Mimocichla plumbea* (Linn.).—1 specimen, March 12.
2. *Mimus gundlachi* Cab.—6 specimens, March 18.
3. *Mniotilta varia* (Linn.).—1 specimen, March 12.
4. *Dendroica petechia gundlachi* (Baird).—1 specimen, March 12.
5. *Dendroica discolor* (Vieill.).—6 specimens, March 12.
6. *Dendroica palmarum* (Gmel.).—3 specimens, March 12.
7. *Geothlypis trichas* (Linn.).—5 specimens, March 12.
8. *Geothlypis coryi* Ridgw.*—3 specimens, March 12.
9. *Seiurus aurocapillus* (Linn.).—1 specimen, March 12.
10. *Vireo crassirostris* (Bryant).†—17 specimens, March 12.
11. *Cœreba bahamensis* (Reich.).—6 specimens, March 12.
12. *Spindalis zena* (Linn.).—9 specimens, March 12.
13. *Pyrrhulagra violacea* (Linn.).—9 specimens, March 12.
14. *Euethia bicolor* (Linn.).—5 specimens, March 12.
15. *Contopus bahamensis* (Bryant).—1 specimen, March 12.
16. *Doricha evelynæ* (Bourc.).—2 specimens, March 12.
17. *Coccygus minor maynardi* Ridgw.—1 specimen, March 12.
18. *Columbigallina passerina bahamensis* (Mayn.).—4 specimens, March 12.

IV. CAT ISLAND.

1. *Mimus gundlachi* Cab.—4 specimens, March 11.
2. *Dendroica discolor* (Vieill.).—11 specimens, March 11.
3. *Dendroica palmarum* (Gmel.).—8 specimens, March 11.
4. *Geothlypis trichas* (Linn.).—1 specimen, March 11.
5. *Seiurus aurocapillus* (Linn.).—1 specimen, March 11.
6. *Cœreba bahamensis* (Reich.).—4 specimens, March 11.
7. *Vireo crassirostris* (Bryant).‡—6 specimens, March 11.
8. *Vireo crassirostris flavescens* Ridgw.§—2 specimens (typical), March 11.

* Cf. The Auk, Vol. III, July, 1886, p. 334.

† Many of the specimens inclining toward *V. c. flavescens* Ridgw. (Man. N. Am. B., 1887, p. 476), but none of them typical of that form.

‡ Most of these more yellowish than typical *crassirostris*.

§ Cf. Man. N. Am. B., 1887, p. 476. Mr. Cory, in the revised edition of his 'Birds of the Bahama Islands,' considers *V. c. flavescens* to be a synonym of his *V. alleni*. Of the latter (from Grand Cayman, an island on the southern side of western Cuba), I have seen but a single example, and this cannot be at all nearly matched in a series of nearly 40 specimens of *flavescens*. Should, however, a series of specimens from Grand Cayman show that *V. alleni* and *V. crassirostris flavescens* are practically the same, then *V. approximans* Ridgw. (Proc. U. S. Nat. Mus., Vol. VII, 1884, p. 179), from the island of Old Providence, in the Caribbean Sea, would also have to be considered identical, and therefore on account of its priority that name would have to be used for the yellow race of *V. crassirostris* instead of *V. alleni*.

9. *Spindalis zena* (Linn.).—5 specimens, March 11.
10. *Pyrrhulagra violacea* (Linn.).—14 specimens, March 11.
11. *Euethia bicolor* (Linn.).—14 specimens, March 11.
12. *Passerina cyanea* (Linn.).—2 specimens, March 11.
13. *Doricha evelynæ* (Bourc.).—1 specimen, March 11.
14. *Zenaida zenaida* (Bonap.).—1 specimen, March 11.
15. *Columbigallina passerina bahamensis* (Mayn.).—1 specimen, March 11.

V. WATTLING'S ISLAND.

1. *Mimus gundlachi* Cab.—7 specimens, Feb. 27 to March 8.
2. *Margarops fuscatus* (Vieill.).—4 specimens, March 2 to 9.
3. *Mniotilta varia* (Linn.).—2 specimens, March 9.
4. *Dendroica petechia gundlachi* (Baird).—8 specimens, March 1 to 9.
5. *Dendroica caerulescens* (Linn.).—1 specimen, March 4.
6. *Dendroica discolor* (Vieill.).—13 specimens, Feb. 27 to March 9.
7. *Dendroica palmarum* (Gmel.).—4 specimens, March 2 to 4.
8. *Dendroica kirtlandi* Baird.—4 specimens, March 4 to 9.
9. *Geothlypis trichas* (Linn.).—4 specimens, March 1 to 9.
10. *Seiurus aurocapillus* (Linn.).—3 specimens, Feb. 27 to March 8.
11. *Seiurus noveboracensis* (Gmel.).—1 specimen (no date).
12. *Cœreba bahamensis* (Reich.).—12 specimens, Feb. 27 to March 9.
13. *Euethia bicolor* (Linn.).—7 specimens, Feb. 27 to March 8.
14. *Doricha evelynæ* (Bourc.).—2 specimens, March 4.
15. *Centurus nyeanus* Ridgw.*—1 specimen, March 5.
16. *Coccyzus minor maynardi* (Ridgw.).†—2 specimens, Feb. 27 and March 4.
17. *Falco columbarius* (Linn.).—1 specimen, March 4.
18. *Zenaida zenaida* (Bonap.).—1 specimen (no date).
19. *Columbigallina passerina bahamensis* (Mayn.).—3 specimens, March 1.
20. *Arenaria interpres* (Linn.).—2 specimens, March 9.
21. *Totanus flavipes* (Gmel.).—1 specimen (no date).
22. *Ardea tricolor ruficollis* (Gosse).—3 specimens, March 1 and 2.
23. *Ardea virescens bahamensis* (Brewst.).—5 specimens, Feb. 27 to March 8.
24. *Fregata aquila* (Linn.).—1 specimen, March 6.
25. *Phalacrocorax dilophus floridanus* (Aud.).—1 specimen, March 1.
26. *Phalacrocorax mexicanus* (Brandt).—1 specimen, March 1.
27. *Aythya marila nearctica* Stejn.—1 specimen (no date).
28. *Colymbus dominicus* Linn.—1 specimen, March 2.

VI. RUM CAY.

1. *Mimus gundlachi* Cab.—11 specimens, March 1 to 29.
2. *Galeoscoptes carolinensis* (Linn.).—1 specimen, March 6.

* Cf. The Auk, Vol. III, July, 1886, p. 336.

† *Coccyzus maynardi* Ridgw. Man. N. Am. B., 1887, 274.

3. *Margarops fuscatus* (Vieill.).—10 specimens, March 1 to 6.
4. *Mniotilta varia* (Linn.).—2 specimens, March 2 to 3.
5. *Compsothlypis americana* (Linn.).—1 specimen, March 2.
6. *Dendroica tigrina* (Gmel.).—5 specimens, March 1 to 6.
7. *Dendroica petechia gundlachi* (Baird).—34 specimens, March 1 to 6.
8. *Dendroica coronata* (Linn.).—2 specimens, March 3 and 5.
9. *Dendroica discolor* (Vieill.).—20 specimens, March 1 to 6.
10. *Dendroica palmarum* (Gmel.).—17 specimens, March 1 to 6.
11. *Geothlypis trichas* (Linn.).—10 specimens, March 2 to 6.
12. *Seiurus aurocapillus* (Linn.).—1 specimen, March 5.
13. *Cœreba bahamensis* (Reich.).—24 specimens, March 1 to 6.
14. *Vireo crassirostris flavescens* (Ridgw.).—14 specimens, March 1 to 6.
15. *Ammodramus sandwichensis savanna* (Wils.).—1 specimen, March 4.
16. *Euetheia bicolor* (Linn.).—17 specimens, March 1 to 6.
17. *Doricha evelynæ* (Bourc.).—16 specimens, March 1 to 5.
18. *Sphyrapicus varius* (Linn.).—1 specimen, March 1.
19. *Crotophaga ani* Linn.—5 specimens, March 1 to 5.
20. *Coccyzus minor maynardi* Ridgw.—4 specimens, March 1 to 5.
21. *Zenaida zenaida* (Bonap.).—1 specimen (no date).
22. *Columbigallina passerina bahamensis* (Mayn.).—15 specimens, March 1 to 6.
23. *Totanus flavipes* (Gmel.).—1 specimen (no date).
24. *Ardea virescens bahamensis* (Brewst.).—3 specimens, March 1 to 3.
25. *Fulica americana* (Gmel.).—2 specimens, March 2 and 3.
26. *Aythya marila nearctica* Stejn.—1 specimen (no date).
27. *Colymbus dominicus* Linn.—2 specimens, March 2 and 3.

VII. GREEN CAY.

1. *Mimus gundlachi* Cab.—5 specimens, April 12 and 13.
2. *Galeoscoptes carolinensis* (Linn.).—3 specimens, April 12 and 13.
3. *Mniotilta varia* (Linn.).—2 specimens, April 12 and 13.
4. *Compsothlypis americana* (Linn.).—1 specimen, April 12.
5. *Dendroica tigrina* (Gmel.).—3 specimens, April 12.
6. *Dendroica discolor* (Vieill.).—4 specimens, April 12.
7. *Dendroica palmarum* (Gmel.).—3 specimens, April 12.
8. *Dendroica kirtlandi* Baird.—2 specimens, April 12.
9. *Geothlypis trichas* (Linn.).—6 specimens, April 12.
10. *Seiurus aurocapillus* (Linn.).—3 specimens, April 12 and 13.
11. *Setophaga ruticilla* (Linn.).—2 specimens, April 12 and 13.
12. *Cœreba bahamensis* (Reich.).—5 specimens, April 12.
13. *Vireo crassirostris* (Bryant).—5 specimens, April 12 and 13.*

* 3 typical, 2 inclining toward *flavescens*.

14. *Vireo crassirostris flavescens* Ridgw.—1 specimen, April 13.
15. *Spindalis zena* (Linn.).—1 specimen, April 12.
16. *Ammodramus sandwichensis savanna* (Wils.).—1 specimen, April 12.
17. *Euetheia bicolor* (Linn.).—3 specimens, April 12.
18. *Tyrannus dominicensis* (Gmel.).—2 specimens, April 13.
19. *Myiarchus sagræ* Gundl.—2 specimens, April 13.
20. *Doricha evelynæ* (Bourc.).—5 specimens, April 12.
21. *Ceryle alcyon* (Linn.).—1 specimen, April 13.
22. *Falco columbarius* Linn.—2 specimens, April 12 and 13.
23. *Columba leucocephala* Linn.—2 specimens, April 13.
24. *Columbigallina passerina bahamensis* (Mayn.).—2 specimens, April 12.
25. *Nycticorax violaceus* (Linn.).—1 specimen, April 12.
26. *Porzana carolina* (Linn.).—1 specimen (no date).

VIII. CONCEPCION ISLAND.

1. *Mimus gundlachi* Cab.—9 specimens, March 8.
2. *Dendroica cærulescens* (Linn.).—1 specimen, March 8.
3. *Dendroica petechia gundlachi* Cab.—8 specimens, March 8.
4. *Dendroica discolor* (Vieill.).—1 specimen (no date).
5. *Dendroica palmarum* (Gmel.).—3 specimens, March 8.
6. *Geothlypis trichas* (Linn.).—1 specimen, March 8.
7. *Cœreba bahamensis* (Reich.).—15 specimens, March 8.
8. *Vireo crassirostris flavescens* Ridgw.—4 specimens (all typical), March 8.
9. *Euetheia bicolor* (Linn.).—7 specimens, March 8.
10. *Doricha evelynæ* (Bourc.).—2 specimens, March 8.
11. *Columbigallina passerina bahamensis* (Mayn.).—1 specimen, March 8.
12. *Ægialitis wilsoni* (Ord.).—1 specimen, March 8.
13. *Nycticorax violaceus* (Linn.).—1 specimen, April 13.

IX. BOOBY ROCK, NEAR GREEN CAY.

1. *Sula leucogastra* (Bodd.).—1 specimen, April 13.

X. AT SEA.

1. *Spindalis zena* (Linn.).—1 specimen (no date).
2. *Doricha evelynæ* (Bourc.).—1 specimen (no date).
3. *Numenius hudsonicus* Lath.—1 specimen, May 3.

'FIRE-LIGHTING.'

BY GEORGE H. MACKAY.

'FIRE-LIGHTING' is practised to a greater or less extent by a few market gunners exclusively for gain in the shallow bays adjacent to the Atlantic seaboard. There is a strong general, as well as local, sentiment against the pursuit of water fowl in this manner, and the laws are generally pronounced against it. For this reason it is a rather difficult matter to obtain much reliable information regarding it from those engaged in this calling.

We consequently have but limited knowledge as to the *modus operandi* of pursuing water fowl in this way or its effects. My desire to know something about Fire-lighting has been strengthened from time to time, while on my shooting trips, by seeing usually just after dark, certain lights creeping slowly out on the bay, or moving silently along the shores, and which, as I watched them, would often change from dazzling brightness to total darkness. It was some years before I had an opportunity to investigate these lights, but it finally came through an experienced bayman whom I had previously employed, and who, at times, went after water fowl in this manner.

The great desideratum in this kind of shooting is the lantern, as on its construction much depends, and I describe it from memory in detail in order that a better idea may be formed of the effect its use is likely to produce on birds. A large light is necessary. A locomotive headlight would serve admirably, for it throws a broad and strong light. A small lantern would be of comparatively little use, for the more powerful and far reaching the rays of light, the better the chance of successfully approaching the water fowl. As not many of the baymen can afford a locomotive head-light the result is a variety of lanterns are used, varying according to the means and ingenuity of the owner. The one my boatman used might come under the head of first class lights. It was about fourteen inches wide and eighteen inches high, and was made of tin with plain glass on three sides, the back being tin, bright inside and supporting two large reflectors, in front of which were placed two kerosene lamps with large burners. Tin

doors lined with looking glass were attached to the plain glass sides, thus leaving only the front uncovered. There were funnels at the top to carry off the heat and smoke from the lamps. When ready for use the lantern is securely fastened on the bow of a small boat. The lamps are then lighted and turned low. The boatman rows towards the birds he is in quest of and which may be a quarter of a mile away, resting on some sand bar, or feeding along the shore. Canada Geese are the birds usually pursued. When sufficiently near for his purpose (it now being quite dark), he turns up the lamps, and the looking glass doors are opened and kept in place by a wire rod at such an angle as to focus the rays of light in conjunction with the reflectors at the back. Thus there is cast ahead of the boat a broad and far reaching stream of light. Dark evenings are most suitable, and the water should be smooth. It is desirable that the boat have smooth sides, instead of lap streaks, as the water makes a noise when striking against the latter. The boatman stands or sits at the stern with his gun in readiness, and sculls or poles the boat according to the depth of water.

Great care must be exercised in approaching birds, as a careless knock of the oar against the boat may alarm them. After the birds have come within the rays of light, they must be kept covered by it until shot at, for a change from light to darkness will cause them to fly. A thorough knowledge of the surroundings, and judgment in guiding the boat by the direction of the wind, is necessary to prevent getting turned around, or going to the windward, when the birds may scent your approach. Before starting out, it is important to know the whereabouts of one or more flocks of birds. I remember an afternoon, there being every indication of a favorable evening, when twenty-five Canada Geese sat on a sand bar about a mile from where we were. My boatman said, "We will go after them with the lantern tonight." While on our way to them I sat behind the lantern perfectly still with cocked gun, while the boatman, standing upright in the stern with his gun beside him, sculled silently along, the stream of light from our lantern, with its well-defined limits, lighting up for quite a distance the path in front of the boat. Presently he asked in a whisper if I saw the Geese; I replied "No," and he pointed out some indistinct specks ahead of us. As the wind was blowing across the boat there was no danger of our being scented. As we approached I did not take my eyes from the

Geese. They did not appear afraid or suspicious, but acted in the most natural manner possible. One preened its feathers, another rubbed the side of its head on its back, another dipped its bill in the water, of which there was a depth of about three or four inches on the bar, on which they were standing. The rays of the lantern covered the flock, while outside of its limits all was inky darkness. Not the slightest curiosity or uneasiness was evinced by them on the approach of the light. The boat meanwhile approached too near, being within fifteen yards of them, and although they were not standing close together, we were now obliged to fire. Confusion followed the reports; but it was soon still. Those that could do so flew away, leaving seven dead. That we could have gone into their very midst, seems probable.

Leaving this locality we headed out from shore in search of a large flock of Brant which we had heard when on our way to the Geese. We had no difficulty in finding them, but could not get near enough to see them although we chased them for a long distance by their calls, being quite near them at times. These birds swim faster than the boat can be propelled, and I am told are as a rule difficult to approach. Having decided to return, we were silently moving along the edge of the marsh, sweeping the water adjacent to the shore with our light, when a pair of Black Ducks were observed, feeding and paddling in the rays of the lantern. They were perfectly unconcerned, and although the boatman was standing up, they could neither see nor hear anything. They would turn around and lower their heads to the water. I saw no signs of fear or curiosity, and they showed no particular interest in the light. I finally perceived a slight uneasiness, and as we approached nearer they commenced to swim away with their heads up, apparently with a suspicion that all was not as it should be. I think they may have heard us whispering, still they made no attempt to fly until we fired at them from a distance of not over a dozen or fifteen yards.

Several years after I tried an experiment to see how near I could walk up to a flock of Common Terns (*Sterna hirundo*) with an ordinary hand lantern. They were roosting on the beach. I found I could approach to within about three or four yards of some of them, when they would fly a little way and alight again. This was the result after several trials. I think the

reason I could not approach nearer, was that the lantern distributed an equal amount of light in all directions, thus making me visible; had the lantern been so arranged as to cast the rays only ahead, I think I could have walked among them, or at least close to the outside edge of the flock. The above instances seem to show that the only effect was the dazzling of the birds by the brilliant rays of light cast on them from the lantern. This with the absence of any scent or sound sufficient to make the birds suspicious caused them to act in the manner most natural to them. It seems reasonable to infer, that when such a concentration of light is artificially directed at a person, animal, or bird, the same effect is produced as when looking steadily at the sun; in other words, the light is so dazzling to the eyes as to render them incapable of seeing any object for the time being. This seems to me to be the explanation of the effect of the light thrown on the birds from the lantern. Had a noise been made when we were near them, they would have flown away quickly enough, lantern or no lantern.

It seems to me that the principle objection to the use of a light in pursuing waterfowl after dark lies in the fact that such night shooting harasses the birds on their roosting and feeding grounds, which, as anyone who has had any experience knows, causes them to forsake such places and seek others where they will be unmolested. Fire-lighting is generally not remunerative, and the men who follow it have much to contend with, both in regard to weather, birds, and the law. It is likely to be engaged in by only a few of the baymen, as most of their friends who shoot, being day gunners, are opposed to it, knowing well its evil effect on wild fowl. While I regret that my experience has been so limited, I can still congratulate myself that it has been no greater. I present these notes as a slight contribution to the knowledge of a subject on which little has been written.

A REVISION OF THE SPECIES OF *MOLOTHRUS*
ALLIED TO *M. BONARIENSIS* (GM.).

BY WITMER STONE.

HAVING recently made a careful study of the specimens of Icteridæ in the collection of the Academy of Natural Sciences of Philadelphia, which formed the basis of Cassin's review of this family in the Proceedings Phila. Acad., 1865-6, I found that the true nature of several of the species of *Molothrus* and *Lampropsar* described by him has been but very imperfectly understood by subsequent writers on these groups.

This fact led to a more extended study of the species of *Molothrus* allied to *M. bonariensis*, based upon the specimens in the Academy collection and a number from the collection of the United States National Museum, which were loaned to me through the kindness of Mr. Robert Ridgway of that institution.

The most surprising point in connection with this investigation was Cassin's mistake in the identification of the species of *Lampropsar*, the birds described by him as *L. tanagrinus* proving to be young males of the small form of *Molothrus bonariensis*, known as *M. atronitens*, while his *L. guianensis* is an adult male of the same species. With such an idea of the nature of the genus *Lampropsar*, it is not surprising that Mr. Cassin considered it a subgenus of *Molothrus* and that the new species described by him as *L. cabanisii* should prove to be a true *Molothrus*—i.e., the one subsequently described by Finsch as *M. cassini*. Finsch identified this bird with the *M. discolor* of Cassin, and as this name (based on *Passerina discolor* Vieill.), proved to be a synonym of *Molothrus bonariensis*, the new name, *M. cassini*, was proposed for the species. As a matter of fact, however, the *M. discolor* of Cassin is a very different bird from the one with which Finsch identified it, and is still unfortunately without a name.

In view of the confusion which exists in this group, I have thought it worth while to give a full synonymy of the several species and to add descriptions by which they may be separated.

The genus *Molothrus* as generally recognized contains two well defined genera, *Molothrus* and *Callothrux*, which have

been clearly separated by Ridgway (Manual of N. A. Birds, p. 589). To *Callothrux* belong *M. aneus* Wagl., *M. robustus* Cab., and probably *M. armenti* Cab., a bird which I have never seen, and which is not now in the Academy collection, though Cassin refers a young male formerly in the collection to this species. To *Molothrus* belong the brown headed *M. ater* (Bodd.) and *M. ater obscurus* (Gmel.), the rufous winged *M. badius*, *M. fringillarius*, *M. rufoaxillaris*, and the group of glossy purple species allied to *M. bonariensis* (Gm.). It is among the latter that the confusion exists.

Having examined all the material at my disposal and consulted all the descriptions applying to this group, I think that five species can be recognized, the adult males of which may be distinguished by the following table.

- A. Reflections of head and interscapulum decidedly purple. Breast bright purple, rather brighter than the back and generally with slight golden reflections.
- a. Wing, 3.80 to 4.00 in.....*M. atronitens*.
 - b. Wing, 4.25 to 4.50 in.
 - aa. Bill moderate, culmen .73 in.....*M. bonariensis*.
 - bb. Bill much heavier, culmen .82 in. or more...*M. purpurascens*.
- B. Reflections of head and interscapulum bluer. Breast darker purple without golden reflections. Bill more slender than in any of the other species, .80 in. long.....*M. venezuelensis*.
- b. Wing 5.15 to 5.25 in.....*M. cabanisii*.

The synonymy of the species, with brief descriptions, follows:

***M. bonariensis* (Gm.).**

- Tanagra bonariensis* GMELIN, Syst. Nat. I, p. 898, 1788.—BONAPARTE, Conspectus Av. I, p. 437.
- Molothrus bonariensis* CABANIS, Mus. Hein. I, p. 193.—CASSIN, Proc. A. N. S. Phila. 1866, p. 19.—SCLATER & SALVIN, P. Z. S. 1868, p. 140.—SCLATER, Ibis, 1884, p. 5; Catal. Bds. Brit. Mus. XI, p. 335.
- Icterus sericeus* LICHT., Doubl., p. 19, 1823.
- Molothrus sericeus* BONAPARTE, Conspectus Av. I, p. 437.—CASSIN, Proc. A. N. S. Phila. 1866, p. 21.
- Molothrus sericeus* BURM. Syst. Ueb. II, p. 279;—La Plata Reise, II, p. 494.
- Scolecophagus sericeus* Sw., An. in Menag., p. 301.
- Icterus minor* SPIX, Av. Bras. I, p. 67, pl. 63, fig. 2.
- Icterus violaceus* MAX. Beitrag. III, p. 1212.
- Molothrus niger* GOULD, Zool. Voy. Beagle, III, p. 107,

Passerina discolor VIEILL. N. D. d'H. N. XXXIV, p. 552; Enc. Meth. p. 939.

Icterus maxillaris D'ORB. & LAFR. Syn. Av. II, p. 6.—D'ORB. Voy., Ois. p. 369, tab. lii, fig. 2.

Molothrus maxillaris CASSIN, Proc. A. N. S. Phila. 1866, p. 21.

Adult male, above shining purplish black, with bluish green reflections on the lower rump, wings and tail; beneath purplish black, a little brighter, with more or less of a golden reflection. Wing 4.25-4.50 in. Bill moderate, rather short and conical; culmen .73 in.; depth through nostril, .36 in; tail, 3.55 in.

Female, ashy brown, paler beneath.

Habitat. Eastern S. America; Argentine Republic to Brazil.

Cyrtotes maxillaris (d'Orb.) seems to be merely this species with the beak deformed. I have examined the two specimens in the Academy collection and can find no other difference.

Molothrus atronitens Cab.

Molothrus atronitens CAB., in Schomb. Guian. III, p. 682; Mus. Hein. I, p. 193.—PELZ. Orn. Bras., p. 200.—FINSCH, P. Z. S. 1870, p. 576.—BERLEPSCH, Journ. f. Orn. 1873, p. 249.—SCLATER, Ibis, 1884, p. 6; Catal. Birds Brit. Mus. XI, p. 337.

Lampropsar tanagrinus CASSIN, Proc. A. N. S. Phila. 1866, p. 22.

Lampropsar guianensis CASSIN, Proc. A. N. S. Phila. 1866, p. 22.

This species seems exactly like the preceding in plumage, but is distinguished by its smaller size while the bill is proportionately longer. Wing 3.80 to 4.00 in., tail 3.35 in., culmen .70 in., depth of bill through the nostril .30 in.

Young birds appear much duller and were identified with *Lampropsar tanagrinus* by Cassin (see above).

M. atronitens seems to be the representative of *M. bonariensis* in northern South America, and will doubtless prove to be a mere race of that species.

Habitat. Venezuela, Guiana, and Trinidad.

Molothrus cabanisii Cass.

Molothrus (Lampropsar) cabanisii CASSIN, Proc. A. N. S. Phila. 1866, p. 32.

Molothrus cassini FINSCH, P. Z. S. 1870, p. 567.—BERLEPSCH, Journ. für Orn. 1873, p. 250.—SCLATER, Ibis, 1884, p. 6; Catal. Birds Brit. Mus. XI, p. 337.

Molothrus discolor SALV. & GODM. Ibis, 1880, p. 123.—SCL. & SALV. P. Z. S. 1879, p. 509. (*Non* CASSIN, Proc. A. N. S. Phila. 1866, p. 20.)

This species is exactly like *M. bonariensis* in plumage, but may be easily distinguished by its large size. Wing, 5.15 to 5.25 in., tail 4.85 in., culmen .80 in., depth of bill through the nostril .38 in.

Cassin's description of this species is perfectly clear, but the fact of its being placed in the genus *Lamprosar* has probably accounted for its not having been recognized.

Habitat. Colombia and Venezuela.

Molothrus purpurascens Hahn.

Xanthornus purpurascens HAHN & KÜSTER, Vög. aus Asien, Lief. V, t. 4.
Molothrus purpurascens CASSIN, Proc. A. N. S. Phila. 1866, p. 20.—SCLATER, P. Z. S. 1869, p. 148; Ibis, 1884, p. 7.—TACZ. Orn. Péruv. II, p. 422.—SCLATER, Catal. Birds Brit. Mus. XI, p. 337.

Adult male, plumage as in *M. bonariensis*, bill much heavier. Female, uniformly lighter than that of the eastern species. Wing, 4.35 to 4.45 in., tail 3.40 in., culmen .82 in., depth of bill through nostril .40 in.

Habitat. Western Peru.

Molothrus venezuelensis, sp. nov.

Molothrus discolor CASSIN, Proc. A. N. S. Phila. 1866, p. 20; *non Passerina discolor* VIEILL. Nouv. Dict. d'H. N. XXXIV, p. 552; *non* SCL. & SALV. P. Z. S. 1879, p. 509, etc.

About the size and general appearance of *M. bonariensis* but uniform steel blue above with scarcely a trace of purple, beneath dark purple. Bill longer and more slender than in *M. bonariensis* and tail longer. Wing 4.40 in., tail 3.20 in., culmen .80 in., depth of bill through nostril .35 in.

Though the distinctly blue shade of the plumage serves to distinguish this species from *M. bonariensis* (or any other species of the group) in the majority of cases, nevertheless, Mr. Ridgway informs me that some specimens of the latter species approach *M. venezuelensis* very closely in this respect. The shape of the bill, however, is constantly different. I have seen but two specimens of this species, a young male in the Philadelphia Academy collection (No. 3652) labelled (probably erroneously) from Cuba, which is one of the types of Cassin's *M. discolor*, and an adult male in the collection of the U. S. National Museum, "No. 88423, Venezuela. A. Goering. Museum von Berlepsch." The latter may be considered the type specimen.

DESCRIPTIONS OF NEW BIRDS FROM THE BAHAMA ISLANDS, WITH REMARKS ON THE SPECIES OF *SPEOTYTO* WHICH OCCUR IN THE WEST INDIES.

BY CHARLES B. CORY.

Spindalis zena stejnegeri,* subsp. nov.

SP. CHAR. (Type from Eleuthera Island, Bahamas, ♂, No. 17014, Coll. C. B. Cory, Boston.)—Similar to *Spindalis zena* from New Providence, but differs in having the sides and flanks black or brownish black and the chestnut collar narrower and edged with yellowish. The outer webs of the two outer tail feathers are partly white. Immature birds often lack the black sides.

Dendroica pityophila bahamensis, subsp. nov.

SP. CHAR. (Type from Abaco Island, Bahamas, ♂, No. 17026, Coll. C. B. Cory, Boston.)—Upper parts, including sides of the head and neck, plumbeous gray, not light ash gray as in *Dendroica pityophila* Gundl. Forehead and crown greenish yellow, showing light yellow at the base of the upper mandible; throat and upper breast yellow, bordered on the breast by a few feathers marked unevenly with black. Belly dull white shading into gray on the sides and flanks. A faint indication of wing bands, showing very faintly in some specimens. Tail dark brown, the two outer feathers showing an arrow-shaped white mark on the terminal portion of the inner webs, variable in different specimens; most of the feathers of the wings and tail showing very narrow grayish edging on the outer webs. Bill and feet dark brown. Closely allied to *Dendroica pityophila* of Cuba. Length, 4.50; wing, 2.30; tail, 2.00; tarsus, .60; bill, .45.

The female resembles the male, but the colors are slightly paler and it is perhaps somewhat smaller.

Habitat. Abaco and Great Bahama Islands, Bahamas.

Speotyto cunicularia bahamensis, subsp. nov.

SP. CHAR. (Type from Inagua, Bahamas, ♂, No. 17062, Coll. C. B. Cory, Boston.)—Larger than *S. dominicensis*, being about the same size as *S. c. floridana*; but with striping on the underparts broader and darker than in *floridana*; the tarsus is feathered similar to *S. cunicularia*, the feathers being tinged with pale brown. Length, 8.10; wing, 6.50; tail, 3.40; tarsus, 1.75.

Habitat. Inagua, Bahamas.

* In compliment to Dr. Leonhard Stejneger.

The variation in the different forms of *Speotyto* is great and not at all constant, specimens from the same locality varying very considerably. The absence or presence of feathers on the tarsus varies much according to season and age. But there is sufficient difference in series from different localities to warrant recognizing two at least as subspecies. By separating the Inagua bird we have the known West Indian forms distributed as follows:

Speotyto cunicularia floridana Ridgw.

Tarsus nearly naked; underparts marked with irregular brown bands, becoming more imperfect and paler on the belly and flanks. Length, 8.15; wing, 6.50; tarsus, 1.75.

Habitat. Florida, Cay Sal, New Providence, Eleuthera, and Andros Islands, Bahamas.

Speotyto cunicularia bahamensis Cory.

Tarsus feathered; underparts marked with broad dark brown bands, extending upon the belly and flanks; feathers on the tarsus showing a brownish tinge. Length, 8.10; wing, 6.50; tarsus 1.75.

Habitat. Inagua, Bahamas.

Speotyto cunicularia dominicensis Cory.

Smaller than *floridana* or *bahamensis*. Tarsus feathered rather less than in *bahamensis* but more than in *floridana*. Underparts marked with dark brown bands, narrower and more regular than in either of the others, some of the breast feathers showing indications of a fourth band, and most of the belly feathers having three perfectly distinct bars. Length, 7.50; wing, 5.45; tarsus, 1.55.

Habitat. Haiti and San Domingo, W. I.

Speotyto guadeloupensis (Ridgw.).

A small dark species, having the spotting on the upper parts very small, often reduced to mere specks; breast feathers often showing two brown bands. Wing, 6.40; tail, 3.40; tarsus, 1.80.

Habitat. Guadeloupe and St. Nevis, W. I.

Speotyto amaura Lawr.

Somewhat darker than *guadeloupensis* but similar, the spots on the interscapular region somewhat longer, and the breast marking somewhat heavier. Wing, 6.30; tail, 3.10; tarsus, 1.50.

Mr. Lawrence, in his original description, writes: "In the Antigua bird each feather of the breast is crossed with but one bar, while those of the other (*guadeloupensis*) are crossed with two." Insufficient material makes it inexpedient to attempt to decide as to the standing of these forms, but the two birds are very closely allied.

Habitat. Antigua, W. I.

LIST OF THE BIRDS OBTAINED BY MR. C. S. WINCH
ON THE ISLANDS OF GREAT BAHAMA AND
ABACO, BAHAMA ISLANDS, DURING JUNE,
AND ON ELEUTHERA IN JULY, 1891.

BY CHARLES B. CORY.

GREAT BAHAMA.

<i>Ægialitis wilsonia</i> (Ord).	<i>Geothlypis rostratus tanneri</i> (Ridg.).
<i>Geotrygon martinica</i> (Gmel.).	<i>Dendroica petechia gundlachi</i> Bd.
<i>Chordeiles minor</i> Cab.	<i>Dendroica vigorsii</i> (Aud.).
<i>Dryobates villosus maynardi</i> Ridg.	<i>Dendroica pityophila bahamensis</i>
<i>Sporadinus ricordi</i> (Gerv.).	Cory.
<i>Pitangus bahamensis</i> Bryant.	<i>Cæreba bahamensis</i> (Reich.).
<i>Myiarchus sagræ</i> Gundl.	<i>Sitta pusilla</i> Lath.—First record of
<i>Tyrannus dominicensis</i> (Gmel.).	this species in the Bahamas.
<i>Agelaius phæniceus bryanti</i> Ridg.	<i>Vireo crassirostris</i> Bryant.
<i>Loxigilla violacea</i> (Linn.).	<i>Mimus polyglottos orpheus</i> (Linn.).
<i>Spindalis zena townsendi</i> Ridgw.	<i>Mimocichla plumbea</i> (Linn.).
<i>Callichelidon cyaneoviridis</i> Bryant.	

ABACO.

<i>Buteo borealis</i> (Gmel.).	<i>Loxigilla violacea</i> (Linn.).
<i>Zenaidura macroura</i> (Linn.).	<i>Spindalis zena townsendi</i> Ridgw.
<i>Chordeiles minor</i> Cab.	<i>Vireo crassirostris</i> Bryant.
<i>Sporadinus ricordi</i> (Gerv.).	<i>Callichelidon cyaneoviridis</i> Bryant.
<i>Doricha evelynæ</i> (Bourc.).	<i>Geothlypis rostratus tanneri</i> (Ridg.).
<i>Centurus blakei</i> Ridgw.	<i>Dendroica vigorsii</i> (Aud.).
<i>Dryobates villosus maynardi</i> Ridg.	<i>Dendroica pityophila bahamensis</i>
<i>Myiarchus sagræ</i> Gundl.	Cory.
<i>Contopus bahamensis</i> Bryant.	<i>Dendroica dominica</i> (Linn.).
<i>Pitangus bahamensis</i> Bryant.	<i>Cæreba bahamensis</i> (Reich.).
<i>Tyrannus dominicensis</i> (Gmel.).	<i>Polioptila cærulea</i> (Linn.).
<i>Icterus northropi</i> Allen.*	<i>Mimus polyglottos orpheus</i> (Linn.).
<i>Agelaius phæniceus bryanti</i> Ridg.	<i>Mimocichla plumbea</i> (Linn.).

ELEUTHERA.

<i>Colymbus dominicus</i> Linn.	<i>Speotyto cunicularia floridana</i>
<i>Ardea virescens</i> Linn.	Ridgw.
<i>Totanus flavipes</i> (Linn.).	<i>Geotrygon martinica</i> (Gmel.).

* Several specimens taken, all being slightly darker yellow than the type. Not previously known except from Andros Island.

<i>Saurothera bahamensis</i> <i>Bryant</i> .	<i>Loxigilla violacea</i> (<i>Linn.</i>).
<i>Doricha evelynæ</i> (<i>Bourc.</i>).	<i>Euetheia bicolor</i> (<i>Linn.</i>).
<i>Coccyzus minor maynardi</i> <i>Ridgw.</i>	<i>Vireo crassirostris</i> <i>Bryant</i> .
<i>Myiarchus sagræ</i> <i>Gundl.</i>	<i>Geothlypis coryi</i> <i>Ridgw.</i>
<i>Tyrannus dominicensis</i> (<i>Gmel.</i>).	<i>Cæreba bahamensis</i> (<i>Reich.</i>).
<i>Contopus bahamensis</i> <i>Bryant</i> .	<i>Mimus gundlachi</i> <i>Cab.</i>
<i>Spindalis zena stejnegeri</i> <i>Cory.</i>	<i>Mimocichla plumbea</i> (<i>Linn.</i>).

LIST OF BIRDS COLLECTED ON THE ISLAND OF
INAGUA, BAHAMA ISLANDS, FROM MAY 1 TO
JULY 10, 1891.

BY CHARLES B. CORY.

<i>Phaëthon flavirostris</i> <i>Brandt</i> .	<i>Speotyto cunicularia bahamensis</i> <i>Cory.</i>
<i>Sterna antillarum</i> (<i>Less.</i>).	<i>Chrysotis leucocephala</i> (<i>Linn.</i>).
<i>Sterna dougalli</i> (<i>Montag.</i>).	<i>Doricha lyrura</i> <i>Gould</i> .
<i>Sterna sandvicensis acufflvida</i> (<i>Cabot</i>).	<i>Coccyzus americanus</i> (<i>Linn.</i>).
<i>Sterna maxima</i> <i>Bodd.</i>	<i>Coccyzus minor maynardi</i> <i>Ridgw.</i>
<i>Nycticorax violaceus</i> (<i>Linn.</i>).	<i>Myiarchus sagræ</i> <i>Gundl.</i>
<i>Ardea virescens</i> <i>Linn.</i>	<i>Tyrannus dominicensis</i> (<i>Gmel.</i>).
<i>Ardea candidissima</i> <i>Gmel.</i>	<i>Dolichonyx oryzivorus</i> (<i>Linn.</i>).
<i>Ajaja ajaja</i> (<i>Linn.</i>).	<i>Loxigilla violacea</i> (<i>Linn.</i>).
<i>Tringa minutilla</i> <i>Vicill.</i>	<i>Euetheia bicolor</i> (<i>Linn.</i>).
<i>Ereunetes pusillus</i> (<i>Linn.</i>).	<i>Vireo altiloquus barbatulus</i> (<i>Cab.</i>).
<i>Ægialitis semipalmata</i> <i>Bonap.</i>	<i>Vireo crassirostris</i> <i>Bryant</i> .
<i>Ægialitis wilsonia</i> (<i>Ord</i>).	<i>Cæreba bahamensis</i> (<i>Reich.</i>).
<i>Ægialitis vocifera</i> (<i>Linn.</i>).	<i>Seiurus aurocapillus</i> (<i>Linn.</i>).
<i>Ægialitis meloda</i> (<i>Ord</i>).	<i>Seiurus noveboracensis</i> (<i>Gmel.</i>).
<i>Symphemia semipalmata</i> (<i>Gmel.</i>).	<i>Setophaga ruticilla</i> (<i>Linn.</i>).
<i>Arenaria interpres</i> (<i>Linn.</i>).	<i>Geothlypis trichas</i> (<i>Linn.</i>).
<i>Hæmatopus palliatus</i> <i>Temm.</i>	<i>Dendroica striata</i> (<i>Forst.</i>).
<i>Himantopus mexicanus</i> (<i>Müll.</i>).	<i>Dendroica palmarum</i> (<i>Gmel.</i>).
<i>Zenaida zenaida</i> (<i>Bonap.</i>).	<i>Dendroica petechia gundlachi</i> <i>Bd.</i>
<i>Melopelia leucoptera</i> (<i>Linn.</i>).	<i>Poliophtila cærulea</i> (<i>Linn.</i>).
<i>Pandion haliaëtus carolinensis</i> (<i>Gmel.</i>).	<i>Mimus polyglottos elegans</i> (<i>Sharpe</i>)
	<i>Mimus gundlachi</i> <i>Cab.</i>
	<i>Margarops fuscatus</i> (<i>Vicill.</i>).

ON A COLLECTION OF BIRDS MADE ON THE
ISLANDS OF ANGUILLA AND CAY SAL OR SALT
CAY, BAHAMA ISLANDS, BY MR. CYRUS
S. WINCH, DURING MAY, 1891.

BY CHARLES B. CORY.

THE Islands of Anguilla and Cay Sal are situated about sixty miles north of Cuba at the extreme southwestern portion of the Bahama Banks. Anguilla is high and rather barren, the lower portions being covered with a low scrub and brush. Unfortunately much of the vegetation had been destroyed by fire, and portions of it were still burning at the time of Mr. Winch's visit. He observed many birds passing on their migration north. On May 10 and 11 the Bobolink and Black-poll Warbler (*Dendroica striata*) were abundant. The species taken on Anguilla were:

<i>Sterna fuliginosa</i> Gmel.	<i>Chelidon erythrogaster</i> (Bodd.).
<i>Zenaida zenaida</i> (Bonap.).	<i>Setophaga ruticilla</i> (Linn.).
<i>Coccyzus americanus</i> (Linn.).	<i>Geothlypis trichas</i> (Linn.).
<i>Dolichonyx oryzivorus</i> (Linn.).	<i>Dendroica cærulescens</i> (Gmel.).
<i>Callichelidon cyaneoviridis</i> Bryant.	<i>Dendroica striata</i> (Forst.).

Cay Sal is rather more fertile than Anguilla and has a fresh water pond in the interior surrounded by cocoanut and other trees. A large rabbit (probably introduced) was at one time abundant, but is claimed now to be dying off. The Burrowing Owl on this island appears to be the same as the Florida form. Mr. Winch reached Cay Sal on May 14 and found birds abundant, mostly our common species on their migration. On May 16 birds were less numerous and on May 19 very few were to be seen on the island. He procured the following:

<i>Sterna antillarum</i> (Less.).	<i>Callichelidon cyaneoviridis</i> Bryant.
<i>Arenaria interpres</i> (Linn.).	<i>Seiurus noveboracensis</i> (Gmel.).
<i>Speotyto cunicularia floridana</i>	<i>Geothlypis trichas</i> (Linn.).
Ridgw.—Resident and not	<i>Geothlypis agilis</i> (Wils.).—Not
uncommon.	previously recorded from the
<i>Coccyzus americanus</i> (Linn.).	West Indies.
<i>Tyrannus dominicensis</i> (Gmel.).	<i>Dendroica vigorsii</i> (Aud.).
<i>Agelaius phœniceus bryanti</i> Ridg.	<i>Turdus aliciae bicknelli</i> (Ridgw.).
<i>Dolichonyx oryzivorus</i> (Linn.).	—First record for the West
<i>Chelidon erythrogaster</i> (Bodd.).	Indies.

OBSERVATIONS ON THE BIRDS OF JAMAICA,
WEST INDIES.II. A LIST OF THE BIRDS RECORDED FROM THE ISLAND, WITH
ANNOTATIONS.

BY W. E. D. SCOTT.

THE PURPOSE of the following list is to show as concisely as possible the actual species that are known to have occurred on the island of Jamaica, with some account of their habits and distribution, time of appearance if migratory, and place and time of breeding. During the short time, five months, that I spent on the island, I was able to gather much useful information, but this alone would have been quite inadequate to the purpose of this paper, and I am much indebted to a number of gentlemen of Jamaica for information, both written and verbal, which will be duly indicated where data so obtained are used.

To Mr. Charles B. Taylor, of Rae Town, Kingston, Jamaica, who was for a time the acting curator for the Department of Zoölogy of the Jamaica Institute of Kingston, I am under great obligation for manuscript notes, the records of his own observations. I shall have frequently to quote these and shall refer to them without further comment as Mr. Taylor's notes.

Having had little time or facility for the study of the water birds, especially such as are migratory, I am obliged to use information already published, in order to make this list as complete as possible. At the same time care has been taken to exclude all species from the list save those that have been absolutely recorded from the island.

1. *Podilymbus podiceps* (Linn.). PIED-BILLED GREBE.—This is a resident on the island and both Philip Henry Gosse, Esq., and the late Richard Hill, Esq., of Spanishtown speak of it as "*Podilymbus carolinensis*?" or "Black-throated Grebe." Mr. Hill found the bird not rare on the River Cobre, but does not state at what season of the year he observed it.

The only individual that I met with during the past winter was taken on a small pond near Priestmans River, Portland Parish, on the 23d Jan-

uary, 1891. It is an adult female, No. 10574 of my catalogue, and is in almost full plumage. The bird was in company with a large number of *Colymbus dominicus* Linn.

The following in regard to this individual I copy from my field notes: "Priestmans River, 23d January, 1891. Secured today an adult female (10574) in full plumage, but much browner beneath than individuals from the United States. The ovaries are so much developed that I am inclined to believe that the species would soon have bred at this point."

From Mr. Taylor's notes I quote as follows: "On the Rio Cobre and Hunt Bay Rivers, as well as many of the larger canals that flow from them, this species is of common occurrence. During December, 1885, I visited the 'Dam' or headworks of the Rio Cobre Irrigation Canal, situated on the road to the north side of the island, at a point about four and a half miles above Spanish Town. On the large sheet of water termed the Dam, above the main intake, Grebes were numerous, swimming and feeding with Gallinules among the thick growth of surface weeds. I walked out along the viaduct on the river near where a few Grebes were swimming. They did not appear much alarmed, nor swim away, but if looked at intently for any time they submerged their bodies, sinking as they rested on the water, just as if they had been gently pulled under by the legs. I watched two or three dive and was surprised at the incredible length of time they remained under. Six eggs from this locality, taken on 14th July, 1888, show various stages of incubation. Some of the eggs are covered with small excrescences where the chalky covering appears unusually thick."

2. *Colymbus dominicensis* Linn. DIVER.—A common resident species in the small fresh water ponds of the Parish of Portland, and said to be plentiful in suitable localities throughout the island.

Philip Henry Gosse, Esq., says in his 'Birds of Jamaica,' page 440: "The ponds of the cattle-pens are the favorite resorts of this little Grebe." The cattle-pens of Jamaica, it may be explained, are estates given up to the breeding of cattle and to dairy purposes. The large open pastures, often many hundred acres in area, generally include shallow fresh water ponds of varying extent, and such sheets of water are the localities most affected by this species. Mr. Gosse found nests with four eggs in August, but as the birds had almost assumed their full breeding plumage in January, I conclude that the record of August nesting must be that of a second brood.

At Priestmans River, January 7, 1891, I found this a rather common species, apparently mated. A male taken in full plumage had the testes as large as the largest size of buckshot. At the same locality, 20th January, 1891, a male taken (No. 10485) is apparently in the plumage of the first year. No black about the throat and generally much lighter throughout in color than birds in full plumage. The testes were elongated in this individual, being about a third of an inch in length and one eighth of an inch in their smaller diameter. The irides were dull greenish yellow. At the same locality, 23d January, 1891, I took four individuals in a shallow pond,

Nos. 10570 to 10573 inclusive. Three were females and one a male. The females all appeared about to breed, but showed considerable individual variation in this respect. In one the egg yolk was almost or quite developed and the first egg would have been laid in a week at latest. The other two would have bred in the next four or five weeks. These four birds were all in full plumage. Many individuals were seen beside those that were secured, and the birds were abundant at this point, though of course local in distribution.

From Mr. Taylor's notes I add the following: "I have never seen this species associating with the larger or Pied-billed Grebe, nor have I ever noted it on any waters, save those of the 'ponds' that occur on nearly all cattle 'pens.' On many of these miniature lakes, however, they are numerous, nesting among the rushes and rank growth at the margins. Three eggs in my possession were taken in the month of September, 1888, from a pond at 'New Works,' a pen near Linstead in St. Catherine."

3. *Æstrelata caribbæa* (Carte). JAMAICA PETREL. BLUE MOUNTAIN DUCK. DRY LAND BOOBY.—Dr. E. N. Bancroft in the 'Zoological Journal' (Vol. V, 1828, pp. 80, 81) speaks at some length of a bird, evidently a Petrel of some kind. There is no attempt at a description and no figure is given. He suggests at the end of his remarks that if it should be found to be a new species, the name *Procellaria jamaicensis* be applied to it. Though this name has been used by many authors in dealing with the species under discussion, it is clearly *nomen nudum*, and as such should be dispensed with. Dr. Alexander Carte in Proceedings of the London Zoological Society for 1866 (pp. 93-95) figures and carefully describes under the name of *Pterodroma caribbæa* the bird under consideration. This appears to be the first recognizable diagnosis. The types were two birds sent to the Royal Dublin Society by Mr. W. T. March, and the following notes were sent by the same gentleman to Dr. Alexander Carte, and are quoted in the paper above cited.

"It is a night-bird, living in burrows in the marly clefts of the mountains at the east and northeast end of the island.

"The burrows form a gallery 6 to 10 feet long, terminating in a chamber sufficiently commodious to accommodate the pair; from this they sally forth at night, flying over the sea in search of food (fishes), returning before dawn.

"It is often seen on moonlight nights and at sunrise running about the neighborhood of its domicile, and sometimes crossing the road regardless of the laborers going to their work. I know nothing of its nidification.

"The first specimen recorded was obtained by the late George Atkinson. The second by Sir Henry Barkly. The next, a pair,* were sent by me to the Royal Dublin Society."

The small number of individuals extant in collections is a commentary on its rarity, or perhaps on the difficulty of obtaining a bird that was common at points on the Island of Jamaica in very recent times.

* The types.

So careful and painstaking a worker as the late Philip Henry Gosse, Esq., only knew the bird by hearsay, and I quote as of interest the few words he devotes to it (*Birds of Jamaica*, p. 437), he in turn quoting from letters from his friend Richard Hill, Esq.

"In the Blue Mountains, high up toward their summits, is a curious BURROWING bird, which they call the Blue Mountain Duck. It is described as having webbed feet and a hooked parrot-bill. This description would indicate a species of *Alca*. It inhabits holes in the cliffs, and is said to burrow to the extent of ten feet. Nothing is known of its habits of feeding. E. M'Geachy, Esq., Crown Surveyor for the county of Surrey, first informed me of the existence of such birds. He had himself taken them from their burrows. These facts have also been assured me by other observers."

Gosse agrees with Mr. Hill that the bird "seems to be of the family *Alcadæ*," and speaks of a specimen "in the possession of George Atkinson, Esq., of Newcastle-on-Tyne."

The only specimens I saw were the two in the collection of the Jamaica Institute, referred to below by Mr. Taylor.

In regard to the present status of these birds on the island, I believe them to be nearly if not quite exterminated. The following details are from my field notes.

Mr. Herbert T. Thomas, Inspector of Jamaica Constabulary, Morant Bay, Jamaica, whose explorations in the little known parts of the Blue Mountains have added much to our knowledge, believes that certain notes heard by him while camped at night on high altitudes, are to be attributed to these birds. This he bases on the knowledge of his guides who assured him that they knew the peculiar sounds well. Mr. Thomas kindly gave me this information personally.

During my stay in the vicinity of Priestmans River, a black man of great intelligence, some education, and a reputation for integrity not to be questioned, aided me in procuring certain of the rarer birds of the island. His name is William King, and he was recommended to me as a person familiar with the birds of the country, and as an expert woodsman and hunter. After employing him for some three months I feel bound to say in this connection that he did much to aid me in the work I was engaged in, and that I have rarely had so careful an observer as he proved to be, to assist me. Toward the last of my stay this man made two expeditions for me into the mountains in quest of the Petrel under consideration. The results of these two trips I summarize as follows:

On the 25th February, 1891, I sent King to Mooretown to see what he could learn in regard to the Jamaica Petrel, a bird which he had heard of and described to me in a general way. He returned on the night of the 27th with the following information. At Mooretown he learned of a man several miles from that place who, it was thought, might know of the birds. Finding him the next day the man told him of a bird which he called a "*dry land Booby*," which lived in holes in the cliffs and which had at one time been used by the people living in the mountains as an article

of food. This man said that not long before he had taken a pair of these birds from one of the holes and had eaten them. He described the noises they make at night and leaves little doubt in my mind as to their identity. Another man told him that these birds were called 'Blue Mountain Ducks.'

I sent King off again the next day with orders to go to the point where the birds burrowed and to try to get me some of them, offering a considerable reward in addition to his regular wages should he be successful. He was to hire the man spoken of to act as guide and to help in digging out the burrows. This time he was gone six days and reported on his return that he and two other men had gone to the roosting or breeding places of the 'dry land Boobies' and had dug out some twenty-five burrows, but had been unable to find a single bird. In many of the holes excavated they found the mongoose (*Herpestes griseus*), now so abundant throughout the island, and of which I hope to write in some detail later. It was the common opinion of the people in the vicinity that the birds and their eggs had been so preyed upon by the mongoose that the birds had about disappeared or at least become very rare. Numbers of different people had assured him that formerly there were plenty of these birds. Making all allowances possible, I am convinced that the information here given is substantially correct, and so record it, trusting it may be of aid to others who care to work personally in the matter.

From Mr. Taylor's notes on this bird I quote the following: "Since the introduction of the mongoose, the Blue Mountain Duck, or Booby Duck, as it is more frequently termed, appears to have been sadly reduced in numbers, and from *one* favorite locality, at least, it would appear they have been completely extirpated. On the slopes and ridges of the Blue Mountains, near Cinchona, where once their burrows were said to be abundant, and the birds themselves of frequent occurrence, they are no longer known. Two skins are in the Institute collection, ♂ and ♀, They are labelled 'Cinchona Plantations, St. Andrews, 17-11, '79. W. Nock, collector,' and formed part of a collection of skins presented by Sir Edward Newton.

"Only recently, however, I have had indications of their occurrence in the 'John Crow Mountains,' a range of inaccessible limestone hills to the east of the Blue Mountains, where it is maintained the birds are still abundant. The information was furnished to Mr. W. Fawcett by an intelligent native resident in the district, who agreed to furnish specimens for the Museum of the Jamaica Institute.

"When at sea near the Morant Cays a Petrel passed close to the vessel which may have been this species."

4. *Oceanites oceanicus* (Kuhl). WILSON'S PETREL.—This species has been recorded from the coast of Cuba and Grenada, and it seems probable that it is the species referred to by Mr. Hill and quoted by Gosse (Birds of Jamaica, p. 437) as follows: "A curious bird of the family *Procellariidae* was found in the Rio Grande in Portland after the late storms (in the autumn of 1846)."

5. *Anous stolidus* (Linn.). NODDY.—This Tern is spoken of by Gosse (*Birds of Jamaica*, pp. 434-437) as being common at Pedro Cays. I did not meet with it at any point on the shores of Jamaica, but give Mr. Taylor's very full and interesting notes, as follows: "In April, 1890, I visited the Morant Cays, my main object being to acquire evidence as to the exact number of eggs normally deposited by the Noddy and Sooty Terns, concerning which, until lately, considerable doubt appears to have existed. I have all along believed that only a single egg is deposited by either species, and the information I have from time to time elicited from the egg-gatherers and others acquainted with the birds has always been in support of the assumption. On this occasion circumstances compelled me to leave the Cays before the general arrival of the birds, but the question has since been definitely settled by Captain Jas. B. Young of H. M. S. 'Pylades', whose observations, made during a visit to the Cays in June of the same year, form the subject of a communication appearing in the January number of 'The Ibis' for this year.

"At the time of my arrival at the Cays (2d April) there were no Sooty Terns there and very few Noddies, but these latter increased in numbers daily, until by the 19th April, the date of my departure, they had assembled in hundreds and were evidently preparing to lay, yet in two females taken two or three days after my arrival, the eggs in the ovaries were very small.

"Soon after sunset the birds came in to roost among the low bushes fringing the shore, and up to a late hour many kept arriving. They flew very swiftly, just skimming the surface of the water, and, standing on the shore at dusk (the time they began to arrive), it was rarely possible to see the birds coming until they were actually on the island. They alighted noiselessly and instantly on gaining the fringing bushes; later in the month, however, as their numbers increased, belated birds found difficulty in effecting an easy landing among the branches, those already in possession pecking right and left at all new comers and croaking harshly. Each day, as their numbers increased, they became more vociferous, until at last the melancholy wail of those flying overhead and the croak of the sitting birds was kept up without intermission all through the night. On moonlight nights they appeared unusually abundant and restless.

"I have watched them there until far into the night, as in scores they kept flying to and from the bushes. Although up and about before dawn on most mornings, I was seldom in time to watch the Noddies leave their roost. One morning, however, I got a good idea of their numbers. It wanted about an hour or so of daybreak, and the moon was still bright, when someone walking along the shore appeared to give a general alarm. Scores of birds got up and went swiftly out to sea, and for some little time a constant stream poured out from the bushes along the shores in every direction, as far as it was possible to see; flying before the wind, they went out of sight in an instant.

"They left the land always in the same manner in which they come in

to roost, dropping to the surface of the water immediately on clearing the shore. Notwithstanding their apparent abundance, the Noddies, in point of numbers, sink into comparative insignificance after the arrival of the Sooty Terns.

"I went the round of the bushes and examined the nests of the Noddies. Every available bush was covered with them. I found in one nest a last year's egg bleached perfectly white from exposure.

"The materials forming the nests were always the same: just a few dry twigs from the same bush, which the dung of the birds had in most cases cemented into a tolerably firm mat. Very little seaweed is used, only here and there a small clump of gulf-weed. Some of the nests are ridiculously small and very few showed any appreciable concavity. There were no remains of old nests on the ground.

"My first care on examining the nests was to look for traces of the broken shells (sea shells) 'speckled and spotted like the eggs,' said to be always found in the nests of the Noddies (Gosse, *Birds of Jamaica*, p. 436.) Very many nests, indeed, contained a few small shells (univalves) but these were always perfect, and, though of various species, quite devoid of the speckled and spotted appearance of a Noddy's egg. These shells I judged to be merely the discarded tenements of the hermit-crabs which infested the bushes and were constantly engaged in clambering among the branches and between the interstices of the nests. I must have examined scores of nests, many of them apparently old ones, but did not see *any* exceptionally large or at all approaching to the 'masses nearly two feet in height,' described by Audubon. For further notes respecting the nesting habits of this bird I am indebted to the kindness of Captain Cole, the lessee of the Cays, who writes me on the 2nd May as follows:

"The birds did not begin to arrive before the 26th (April) and are now beginning to lay. The Noddies like those you captured, i.e., brown-black, with white caps, are about one-half the number of birds arriving: the others are larger, brown-black on back and top of wings, all under body from beak to tail, white.... On their first arrival they are for the first two days flying about in great excitement choosing their mates (?); as soon as this is done the hen chooses her spot for laying, either in the bushes or on the ground (the dark Noddies in the bush, the large birds, white underneath, on the ground). The hen then keeps guard over every bit of material brought by the male for the nest, and if she does not keep a sharp lookout the others steal her sticks, dry seaweed, and bits of bush."

"The Noddy has occurred in Kingston harbor. I once had one brought to me living, but in a very exhausted condition, as it was captured while seated on the bow of a small yacht moored near the shore at Rae Town. It lived for a few days, feeding eagerly on scraps of fish, etc. On a recent visit to Rackum Cay near Port Royal, two of these birds were seen and one was shot. The wind at the time was very high and squally, with occasional showers of rain; a state of weather, I have noticed, that invariably precedes the appearance near Kingston of most of the rarer examples of the *Laridæ*.

"Of the enormous number of eggs taken annually at the Morant and Pedro Cays, those of the Noddy form perhaps not more than a third part. They are usually longer than those of the Sooty Tern, and are also more pointed at the smaller end. The shell, too, has a rougher surface and is 'chalky' to sight and touch. Six specimens are now before me; they vary from dull white to buffy, sparsely blotched and spotted with dark brown and a few neutral tint markings, chiefly round the larger end, where they usually form a ring. Average measurements, 2 by 1.40 in."

6. *Hydrochelidon nigra surinamensis* (Gmel.). BLACK TERN.—Mr. Hill records this as one of the Terns frequenting the Cays. (Gosse, *Birds of Jamaica*, p. 437.)

Mr. Taylor says: "This species I have not met with. It is said to frequent the Morant and Pedro cays, where it is known to the egg gatherers as the 'Redshank.' It is described as breeding in small colonies on the sand apart from the Sooty Terns. I have some eggs, labelled 'Redshank,' sent to me from the Morant Cays in May of last year. Their size almost twice that of two specimens from Turks Island) alone renders their identity doubtful; yet the description of the bird (black with red legs) taken at the time will apply to no other species."

While this evidently does not relate to the species under consideration, I place it on record for the consideration of future workers in this field.

7. *Sterna anæthetus* Scop. BRIDLED TERN.—The following is from Mr. Taylor's notes: "During my stay at Port Henderson, small colonies of this species were noticed on three of the outlying cays in the group near Port Royal. On the smallest of them, a mere pile of loose coral rock, totally devoid of vegetation, there were about a score of birds. We did not know of their presence until in close proximity to the cay, when the greater number rose to flight. A few, however, remained sitting until a landing was effected. Almost immediately my companion found a young bird in down; it lay on a slab of the rock, uncovered.

"We judged, from the actions of the birds (which kept flying round overhead, crying plaintively), that incubation was still going on, especially as on looking among the rocks at one or two places, they showed unusual excitement, swooping down close to our faces and making attempts to alight. We failed to find eggs, though we searched long and carefully; if there were any, they were well concealed, and in many places the passages between the rocks reached down to more than an arm's length. We did not find so many birds on the next cay, not more than twelve or so perhaps. They all kept to the south and eastern sides where the shores were covered with the same loose coral rock; like the last colony they only flew off on our landing.

"One bird flew up almost from our feet, and after a little search I found the single egg under a slab of the rock, one end of which resting on another and higher piece of rock, and the other on the sand, formed a sloping roof that effectually concealed bird and egg. On South-east Cay, the outermost one of all, there was another and larger colony, and here too the birds showed great reluctance to leave the land, alighting again almost

immediately after our departure. I have never seen this Tern associating with any other species; on some mornings, soon after daybreak, a few were seen passing over to the harbor, but as a rule I rarely met with them away from the cays above mentioned. The egg in my possession, which was slightly incubated, measures 1.60 by 1.20 in. It is dull white, closely and uniformly covered with small brown and pale lavender markings. Taken 18th June, 1891, from Southern Cay, near Port Royal. Like the Sooty Tern, this species apparently lays only a single egg."

8. *Sterna fuliginosa* Gmel. SOOTY TERN. EGG BIRD.—Recorded by Gosse at Bluefields, Jamaica, and at Pedro Cays (Birds of Jamaica, p. 433).

From Mr. Taylor's notes I transcribe the following: "I have not met with this species in the harbor of Kingston or among the cays outside Port Royal, where probably it is replaced by *S. anæsthetus*. During severe storms many sea birds are blown inland, and in looking over my notes for 1887 I find the following passage: 'August 20. This morning a statement appeared in one of the newspapers to the effect that thousands of 'Boobies' were seen in an apparently exhausted condition, sitting around the large water tanks at Cavaliers. The island was visited during the previous night by a cyclone, and these birds may have been blown over from the Morant Cays or some other similar locality.' The birds are reported to have frequented the tanks for several days. I did not see them while they were there, but for many days after small flocks of Terns passed over towards the south; so far as I could see they were all Sooty Terns.

"Whether the Sooty Tern retires to rest at night, and where, are points I cannot decide with any certainty. It is a common belief, however, among the egg gatherers, that this species never alights except during incubation.

"The melancholy wailing cries that I used to hear at the cays long after the Noddies had settled to roost may have been those of this species, and on questioning the men they answered me that they were the cries of the 'egg-birds.'

"During all the time I spent at the cays no living example of this bird came under my observation, except when, almost out of sight of land on the passage to Kingston, small flocks were noticed fishing in company with Noddies and Boobies. Yet they must frequently be in the near vicinity of the cays, for on more than one occasion I have found remains of freshly killed birds, the work, doubtless, of the Duck Hawks, a pair of which birds were resident on one of the smaller cays.

"Eggs vary from dull bluish white, through all shades of cream to a deep rich buff, and exhibit an almost endless variety of markings, from small and uniform dark brown spots to bold, rich, sienna-colored blotches, with numerous underlying marks of lavender and neutral tints. Average measurements, 2 by 1.50 in.

"The yolk is bright orange-red, in marked contrast to that of the egg of the Noddy Tern, which is dull pale yellow, a circumstance that appears to have escaped the notice of most observers."

9. *Sterna antillarum* (Less.). LEAST TERN.—Recorded by Mr. Hill in Kingston Harbor. (Gosse, Birds of Jamaica, p. 437.) Mr. Taylor has not met with this species, nor have I personally observed it.

10. *Sterna dougalli* Mont. ROSEATE TERN.—There are records of this species from the coast of Cuba, Porto Rico, and a number of the smaller islands. Small Terns seen off Port Royal, which I was unable to obtain, I thought to be this form. Mr. Taylor says: "I believe this species to have been shot during one of my visits to Rackum Cay in June last."

11. *Sterna hirundo* Linn. COMMON TERN.—Mr. Taylor says: "I have the skin of a Tern, shot at Rackum Cay, that I can ascribe to no other species than *Sterna hirundo* Linn. This bird occurred frequently among a small flock of other Terns that daily resorted to the spit of sand forming the cay. Several were shot. Skin, ♂, 11 July, 1891."

12. *Sterna sandvicensis acuflavida* (Cabot). CABOT'S TERN.—Mr. Taylor's record below seems to be the first absolute information of the occurrence of this species from Jamaica. Mr. Cory gives its distribution in the West Indies as "Bahamas and Antilles" (Cory, Birds of the West Indies, p. 277).

Mr. Taylor says: "*Sterna sandvicensis acuflavida* is perhaps the most abundant species among the cays and in the harbor of Kingston, where great numbers may be seen at most times perched on the stakes marking the ship's channel."

13. *Sterna maxima* Bodd. ROYAL TERN.—Mr. Taylor says: "This species is common at Port Royal Cays and in Kingston Harbor. Said to breed at the Morant Cays."

He adds: "Among the Terns shot at Port Royal I feel tempted to include *Sterna elegans*, but having no specimens now in my possession, its notice here is open to question." This is more probably *Sterna tschegrava* Lepech.

14. *Larus atricilla* Linn. LAUGHING GULL.—Observed near Port Royal. "Frequents the Kays" (Gosse, Birds of Jamaica, p. 437).

Mr. Taylor says this species was shot at Rackum Cay and is not uncommon and breeds at the Morant Cays.

15. *Phaëthon æthereus* Linn. RED-BILLED TROPIC BIRD.—I did not meet with this species though it was described to me by fishermen on the north side of the island, so as to be readily recognizable. They said it was seen generally late in the summer or early in the autumn after severe storms. Gosse speaks of it as a "constant frequenter of the Pedro Kays" (Birds of Jamaica, p. 431).

16. *Phaëthon flavirostris* Brandt. YELLOW-BILLED TROPIC BIRD. BOOBY.—Common resident on the north shore of Jamaica. Breeds in February. For detailed account of the occurrence and habits of this species see Auk, Vol. VIII, No. 3, pp. 249-256.

17. *Sula piscator* (Linn.). RED-FOOTED BOOBY.—Recorded by Gosse. (Birds of Jamaica, p. 418.) Mr. Taylor says: "I have not seen *Sula piscator* (Linn.) alive. A mounted specimen in the collection of birds at the Museum of the Jamaica Institute is labelled Pedro Cay (no date), Coll. J. J. Bowen."

18. *Sula sula* (Linn.). BOOBY.—Recorded by Gosse as common at Bluefields Bay. (Birds of Jamaica, pp. 417, 418.)

Mr. Taylor says: "*Sula sula* (Linn.) was seen in numbers at sea between Kingston and the Cays. Mounted specimens in the Institute collection are labelled 'Pedro Cay, collector J. J. Bowen, Esq.' No date."

19. *Sula cyanops* (Sundev.). BLUE-FACED BOOBY.—"West Indies." (Cory, Birds of the West Indies, p. 272.) There are records from San Domingo and the species probably occurs with the others at Pedro Cays.

20. *Pelecanus fuscus* Linn. BROWN PELICAN.—Common resident species and generally distributed in suitable localities about the island. I saw many off Port Royal, and at Port Antonio noted them several times. At Priestmans River I frequently observed this species passing along the coast in flocks varying from three to sixty individuals. Mr. Taylor says: "*Pelecanus fuscus* Linn. is an abundant species. In October last Capt. Young, of H. M. S. 'Pylades,' found young in the nests among the mangroves at Drunkenman Cay near Port Royal."

21. *Fregata aquila* (Linn.). MAN-O'-WAR BIRD.—A common resident. I saw these birds at Port Royal, at Port Antonio, at Priestmans River, and at many other points along the coast of the island. I have been unable to ascertain at what point these birds breed but it can not be distant, as the birds are present the year around.

Mr. Taylor says this species is "Common, though not so often seen as the Pelican. Just behind Fort Augusta in the harbor is a dense isolated clump of mangroves forming a small island some little distance from the shore. It is a favorite roosting place of Frigates and Pelicans; in fact, the only one near Kingston resorted to by the former. Passing this island one morning, I counted more than eight Frigates and twice as many Pelicans sitting on the overhanging branches; they allowed a very near approach before taking flight. I have been unable to gather any reliable particulars relating to the breeding of this bird near Kingston."

22. *Anas boschas* Linn. MALLARD.—"Accidental in Jamaica." (Cory, Birds of the West Indies, p. 262.) Recorded by Richard Hill, Esq. (Gosse, Birds of Jamaica, p. 408).

23. *Anas obscura* Gmel. BLACK DUCK.—Recorded from Jamaica by Mr. Cory. (Birds of West Indies, p. 262.) Mr. Cory adds, "It is uncertain whether the Dusky Duck, which, it is claimed, occurs in Jamaica, is *Anas fulvigula* Ridgw. or this species."

24. *Anas strepera* Linn. GADWALL.—Probably a regular winter visitor to the island.

25. *Anas maxima* Gosse. GREEN-BACKED MALLARD.—Gosse refers to this as "well known to the negro gunners" at a point "near Savanna le Mar," and did not consider it a hybrid. (Gosse, Birds of Jamaica, pp. 399, 400.)

26. *Anas americana* Gmel. BALDPATE.—There are several records of this species occurring in winter in Jamaica. (See Cory, Birds of the West Indies, p. 264.) From Mr. Taylor's notes: "This species is said to be accidental in winter in the West Indies (Cory, B. W. I., p. 264). I

examined several examples of this species that were offered for sale in Kingston in the winter of last year, when they appeared to be almost as numerous as *Anas discors*."

27. *Anas carolinensis* Gmel. GREEN-WINGED TEAL.—Recorded from the Island by Gosse (Birds of Jamaica, p. 408).

28. *Anas discors* Linn. BLUE-WINGED TEAL.—Common in the town markets in the winter, according to Gosse (Birds of Jamaica, p. 401). I did not meet with the species or see it exposed for sale. Mr. Taylor says it is "abundant in certain favored places during the winter months and is the most common species brought in to Kingston for sale. It is probably resident."

29. *Spatula clypeata* (Linn.). SHOVELLER.—Apparently casual or accidental in winter. I did not observe it.

30. *Dañila acuta* (Linn.) PINTAIL.—There are numerous records of its occurrence on the island.

31. *Aix sponsa* (Linn.). WOOD DUCK.—Said to be of regular occurrence in Jamaica in winter, but is apparently rare.

32. *Aythya americana* (Eyton). REDHEAD.—An uncommon winter visitant.

33. *Aythya vallisneria* (Wils.). CANVAS-BACK.—"Recorded from Jamaica" (Cory, Birds of the West Indies, p. 207).

34. *Aythya affinis* (Eyton). LESSER SCAUP DUCK.—"Recorded from Jamaica" (Cory, Birds of the West Indies, p. 266).

35. *Aythya collaris* (Donov.). RING-NECKED DUCK.—"Jamaica in Winter" (Cory, Birds of the West Indies, p. 267).

36. *Oidemia perspicillata* (Linn.). SURF SCOTER.—"Claimed to have occurred in Jamaica" (Cory, Birds of the West Indies, p. 268).

37. *Erismatura rubida* (Wilson). RUDDY DUCK.—Though this bird is said to be of regular winter occurrence in Jamaica, I think that it must be quite uncommon, and that the following species has been confounded with it.

38. *Nomonyx dominicus* (Linn.). MASKED DUCK. QUAIL DUCK.—In the ponds about Priestmans River I met with this species on two occasions, and from native hunters learned that it was not at all uncommon, especially early in the Fall.

At Priestmans River, 9th February, 1891, I took an adult male, No. 11000, of *Nomonyx dominicus*. The bird was in a small and very shallow pond, and did not attempt to fly away upon being approached, but tried to hide in some thin grass growing where an old stump of a tree projected from the water, and remained so motionless as almost to escape notice, though not more than twenty feet away. It was killed with a light load of dust shot.

This bird differs from the general descriptions that I have found in having the black of the head unbroken by chestnut bars, and in having in the angle of the lower mandible a conspicuous though small triangular white spot.

At the same locality, 26th February, 1891, I took a male apparently of

the first or second year, No. 11284, which differs from the bird of Feb. 9 (No. 11000) in having the black of the head broken by mottled bars of black and chestnut, one above and one below the eye, and has no white patch in the angle of the lower mandible. The black of the head is not so intense as in No. 11000. This bird was shot in a shallow pond just above the house where I had not been for some days. A boy told me there were at least three small Ducks in this pond and he thought four. He had seen them two or three times in the last few days. On going to the pond, one end of which has a dense growth of rushes, two Ducks were seen, but only one killed, the other escaping wounded into the grass. The testes of the bird taken were rather more than a quarter of an inch long and an eighth of an inch in the smaller diameter. These little Ducks do not seem at all rare on the Island, and have much the habits of the Grebes, frequenting small fresh water ponds and depending rather on hiding in the grass or diving than on flight to escape pursuit. They are said by the native gunners to breed at various points on the island.

39. *Chen hyperborea* (Pall.). LESSER SNOW GOOSE.—“Accidental in Jamaica.” (Cory, Birds of the West Indies, p. 259.)

40. *Branta canadensis* (Linn.). CANADA GOOSE.—“Recorded from Jamaica.” (Cory, Birds of the West Indies, p. 260.)

41. *Dendrocygna arborea* (Linn.). BLACK-BELLIED WHISTLING DUCK.—Said to be common at points on the island and to breed in the mangrove swamps. (Gosse, Birds of Jamaica, pp. 395-399.)

42. *Dendrocygna autumnalis* (Linn.). BLACK-BELLIED TREE DUCK.—“The Red-billed Whistling Duck (*D. autumnalis*) though much less common in Jamaica than the preceding (*D. arborea*) is found there in some seasons as an autumnal visitant from the Spanish-Main.” (Gosse, Birds of Jamaica, p. 398.)

43. *Phœnicopterus ruber* Linn. AMERICAN FLAMINGO. RED FLAMINGO.—The visits of Flamingoes to the coast of Jamaica are now very rare, and, so far as I was able to ascertain, none breed at present on the island. Formerly the visits of these birds seem to have been of regular occurrence.

[To be continued.]

TERTIARY FOSSILS OF NORTH AMERICAN BIRDS.

BY R. W. SHUFELDT, M. D.

UPON examining a collection of fossil birds from the Silver Lake Region of Southwestern Oregon, recently submitted to me by Professors E. D. Cope and Thomas Condon for description,

I have been enabled to identify fifty-one (51) species, thirteen (13) of which I find to be new to science. Out of these fifty-one species Professor Cope had on a former occasion published accounts of ten of them—two of which were new—in addition to the thirteen the present writer has been enabled to describe. Among other places, those described by Professor Cope appeared in an article contributed by him to the 'American Naturalist' in November, 1889, and so will not be especially dwelt upon here.

Abundant remains of *Æchmophorus occidentalis* occur in this remarkable collection of some 1500 specimens, and to a lesser degree do we find the fossil bones of *Colymbus holbælli*, *C. auritus* (?), *C. nigricollis californicus*, and *Podilymbus podiceps*. Thus far, it is strange to say, no remains of any species of Loons have been met with, nor any large extinct Divers allied to them. Nor were any of the *Alcidæ* discovered. This is a significant fact, which to the student of the migration of animals during tertiary time, may prove interesting.

Gulls apparently were abundant, and I have been enabled to identify *Larus argentatus smithsonianus*, *Larus philadelphia*, *Xema sabinii*, and another which was most probably *L. californicus*. There were at least two extinct Gulls, and they were of moderate size, and probably not very unlike existing forms, which I have named *Larus robustus* and *Larus oregonus*.

The list of *Laridæ* is completed by *Sterna elegans* (?), *Sterna forsteri* (?), and *Hydrochelidon nigra surinamensis*.

Steganopodes appear to be limited to that big Comorant already described by Cope, the *Phalacrocorax macropus*, and to the probable occurrence of the Pelican, *Pelecanus erythrorhynchus*, of which I found only a part of an ulna in the collection, not quite enough in my opinion to absolutely prove its existence in the geological horizon under consideration. Nevertheless the bone belonged to a Pelican, which was not *fusca*, and as the other species is abundant on those Oregon Lakes at the present writing it was most likely the other species, that is, *P. erythrorhynchus*.

As they are today, Ducks, Geese, and Swans were very plentiful, and with but one or two exceptions they are all identical with existing species. I found more or less abundant fossil remains of *Lophodytes cucullatus*, *Anas boschas*, *A. americana*, *A. carolinensis*, and *A. discors*, and the remains of another Teal which I believe to be *Anas cyanoptera*. *Spatula clypeata* was a very

abundant Duck, and *Dafila acuta* was also found, as well as *Aix sponsa*, *Aythya marila nearctica*(?), *Glaucionetta islandica*, and *Clangula hyemalis*. There was an enormous Goose which I have named *Anser condoni*, in honor of Professor Thomas Condon of the University of Oregon, who was the first naturalist to discover any fossil remains of birds in that region. *Anser condoni* was a species as large again as the Canada Goose, probably exceeding it in size, as much as the Canada Goose exceeds in size one of our smallest Brant. There was *Branta hypsibatus* of Cope, and a new Brant which I have called *Branta propinqua*. Many fossil bones also occur of *B. canadensis*, *Anser albifrons gambeli*, *Chen hyperborea*, and the Swan described by Cope, or *Olor paloregonus*. In all an exceptionally fine series of fossil Anserine birds.

Of the various discoveries made none are more interesting than the fossil remains of a new species of Flamingo,—a form now extinct. Judging from its bones, this species was somewhat longer limbed than *P. ruber*, but not so robust as it in the body. I have named it *Phœnicopterus copei*, in honor of Professor E. D. Cope of Philadelphia.

A small Heron was also discovered, extinct as well as new, which I have called *Ardea paloccidentalis*. Its remains are by no means plentiful. There were also two Coots, our common form, the *Fulica americana*, and a new extinct, smaller one, which I have designated as *Fulica minor*.

Among the Limicolæ I found the fossil bones of *Phalaropus lobatus*, and it has proved to be the only shore bird thus far discovered by the collectors. Gallinæ, however, were abundant, and rich, apparently, in species. Beautiful fossil bones of *Tympanuchus pallidicinctus*, as well as *Pediocætes p. columbianus* were readily recognized in the collection.

In addition to these was a larger and stouter *Pediocætes*, which I have dedicated to my friend Mr. F. A. Lucas of the U. S. National Museum, and called it *Pediocætes lucasi*; but there was also a much smaller type, likewise extinct, and new to science, which I have named *Pediocætes nanus*. Finally, we have an entirely new genus, which I have created to contain the thus far sole species representing it. This species was a large Grouse to which I have given the name of *Paleotetrix gilli*, in honor of Dr. Theo. Gill of the Smithsonian Institution.

Fossil bones of two extinct Eagles were also found in the collection. One of these, which I have called *Aquila pliogryps*, appeared to have been a large species of slender build, and may have had rather the habits of an active Falcon than those of the more sluggish Eagles, such as the common white-headed one for example. The other extinct form I have called *Aquila sodalis*, and it was a smaller form than *Aquila pliogryps*, being more nearly affined to our existing types,—perhaps to such a species as the Golden Eagle for example.

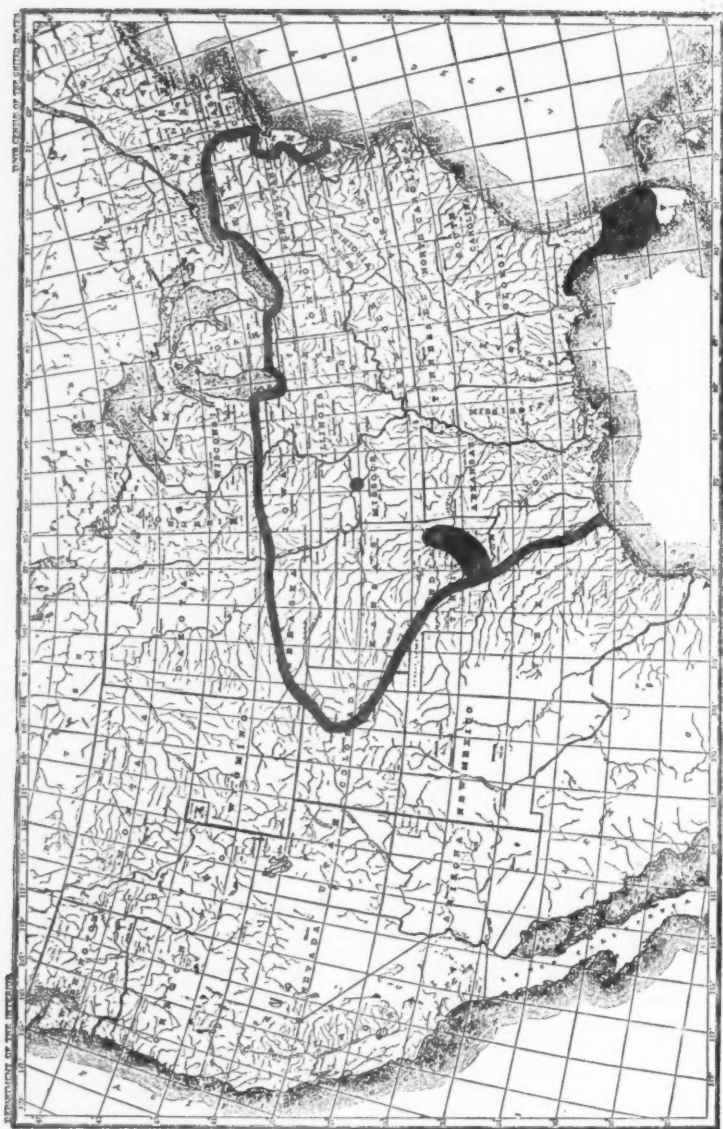
Bubo virginianus, among the Striges, is represented by an almost perfect specimen of the carpo-metacarpus and a toe-joint. The former is identical in character in all particulars with the corresponding bone in a skeleton of *B. v. subarcticus* with which I have compared it.

Remains of Passeres were not abundant in the collection, and I found but two extinct species, both of which are new to science. They were a Blackbird and a Raven. These I have designated respectively as *Scolecophagus affinis* and *Corvus annectens*. The last named was a Raven considerably smaller than any of our present day Ravens as found in the avifauna of the United States.

When printed, my memoir describing this very valuable collection will make some seventy-five quarto pages, and be illustrated by figures on stone of all the fossil bones of the new or otherwise interesting forms.

The work will of course take into consideration a great deal which will be impossible to set forth here, as the present paper pretends to nothing more than a notice of the collection as a whole. What I have given, however, will be sufficient for the thoughtful student in ornithology to gain some idea of the avifauna as far back as the Pliocene, in so far as what is now called South-western Oregon, was concerned. It will be observed that even in that horizon many of the species were identical with those now existing, and in the case of the extinct ones, they were forms that in the majority of instances, would not be out of place even in our present day avifauna, belonging as they did in most instances to modern genera and groups.

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FORMER AND PRESENT RANGE OF THE CAROLINA PARAKEET.
 (Boundary of former range shown by the heavy line; present distribution by solid black.)

THE CAROLINA PAROQUET (*CONURUS CAROLINENSIS*).

BY EDWIN M. HASBROUCK.

FOR MANY years it has been a recognized fact that the Carolina Paroquet (*Conurus carolinensis*) is fast approaching extermination, the last quarter of a century having witnessed such rapid diminution in its numbers and so great a restriction in its range that, "in the opinions of the best judges, twenty years hence it will be known only in history and from museum specimens." In view of this it has seemed desirable to present a monograph of the sole representative of the Parrot family in the United States, illustrated with a map, showing its former range, and as nearly as possible its present distribution.

The genus *Conurus* is exclusively American, and was first characterized by Kuhl in 1820, who referred to it eighty-one species. In 1610-12 the Carolina Paroquet was first mentioned by Strachey,* with the customary brevity and crudeness of the time, and in 1758 Linnaeus gave the first systematic description of it under the generic name of *Psittacus* (all Parrots, from whatever country, being at that time grouped in this genus). Kuhl, however, was the first to separate the Paroquets from the true Parrots, and his list of eighty-one species by subsequent eliminations has been reduced to about fifty, distributed over Mexico, Central, and the whole of South America, with the present species—by far the most beautiful of all—as the sole representative of the genus in the United States.

In comparing the disappearance of the Paroquet with the rapid extermination of other well known birds, one cannot fail to see a similarity between the several cases, and note in each the ruthless and wanton destruction wielded by the hand of man. The Great Auk and Labrador Duck are birds of the past, yet fifty years ago they were plentiful on our eastern coast. The Passenger Pigeons formerly swarmed by millions throughout the States east of the Plains,—today they are a rarity, and their nesting places, which once excited the curiosity of the world, and served as a source

* The Historie of Travaile into Virginia Brittania, by William Strachey, 1610-12.

of revenue to hundreds, are now either abandoned or so far removed from the haunts of man as to be unknown.†

As early as 1832, Audubon speaks of the Paroquet as being not nearly so common as formerly, and from that time till the present they have been becoming less and less numerous until now they are confined to limited areas, and even here are comparatively scarce. In glancing at that portion of the map bounded by the heavy line (representing the area over which they formerly extended), we are amazed at the extent of territory they formerly covered, and can form some little idea of the persecutions to which they have been subjected to totally drive them from their haunts into the isolated regions they are known to inhabit at present. These persecutions (according to all accounts) were not wholly unmerited, as Audubon and Wilson both speak of the destruction caused by these birds among fruit orchards, seemingly out of pure mischief. The former relates an instance of which he himself was an eye witness: — The orchard of a certain fruit grower was visited at the season when buds were developing into fruit, by an immense flock of Paroquets, and in a few hours was completely stripped by them; the birds working in regular manner from tree to tree, and failing so far as he could observe to make use of any of the spoils as food. Naturally, he continues, such depredations were not to be perpetrated with impunity, and retaliation was meted out in the shape of death to as many as could be killed. Unfortunately for the evil doers, a habit peculiar with them is that of knowing little or no fear of fire arms and the wounding of an individual is but the signal for the practical extermination of the entire flock: returning again and again to the scene of slaughter, they fly screaming over their dead companions, falling an easy prey to the marksman who has but to load and fire at pleasure until the numbers become too few or too scattering to make it worth the while. This one peculiar trait is what has apparently led to their rapid disappearance, for the punishment, merited to a certain extent as previously stated, was not visited with a due amount of discretion—which may be said to be the rule rather than the exception in the case of an irate farmer with a shot gun. This, coupled with the shooting for sport (?) by pot-hunters, etc., has practically exterminated one of the most beautiful birds that graced the American continent.

† Auk, VI, 1887, p. 285.

Happily the species is still extant, but in what numbers, or how long it will continue to exist it is of course impossible to say. In the western part of the Indian Territory, and in South Florida, the birds are still to be found, but in regions so inaccessible, and so far from human habitations as to be almost unknown. In the winter of 1888-89, Mr. F. M. Chapman made careful investigations in Florida upon which is based the latter part of the above statement; while, as regards the Indian Territory, a considerable amount of reliable information assures us that it was found as recently as 1889.

Turning now to the map we find that of the forty-four States and five Territories comprising our country, there are records of the occurrence of this species in twenty-two States and one Territory, and the almost absolute certainty of its having strayed into at least five more, making a total of twenty-seven States and one Territory over which it formerly ranged. If we take the forty-third parallel as the northern limit, the twenty-sixth as the most southern, the seventy-third and one hundred and sixth meridians as the eastern and western boundaries respectively, we will have included very nearly all the country in which the Paroquet formerly lived. It will of course be understood that to lay down an exact boundary for any one species is impossible, as where it occurs near the border of a certain State, there is no apparent reason for its not crossing the few intervening miles of country and paying occasional visits to adjacent States, and unless accidentally observed by some one familiar with the importance of such visit the occurrence would go unrecorded. Therefore where we have a record of the Paroquet as formerly common over the whole of a certain State, we may reasonably assume that the border of an adjoining one was occasionally visited, although no record may exist of its having been observed. As an instance both New Jersey and Delaware are without record, yet Maryland and Pennsylvania were formerly visited by them, and there is evidence of its occurring as far north as central New York; in the face of which it is highly probable that both of the above mentioned States were resorted to although not included in the scope of distribution.

In further explanation it will perhaps be best to state, that in drawing the boundary line of the former range I have used the extreme records as boundaries, and a line drawn from one to the other as the extent of the former distribution; it is highly probable, however, that, in some of the extreme records, the birds followed

up some one of the river valleys without wandering over intermediate territory.

As regards the general habits of the Paroquets, there is apparently nothing of interest to be added to the accounts already published. That they are a hardy race is evinced by the appearance of a flock in midwinter at Albany, New York. Nuttall states* that they are so hardy as to appear at St. Louis in the depth of winter, while Wilson recounts† his meeting with a flock on the Ohio in a snow-storm, the birds "flying about like Pigeons and in full cry." This is so greatly at variance with the general habits of Parrots, which are always looked upon as birds of a warm climate, that it does not seem out of place to quote these statements in the present paper.

As to the breeding habits, we have two accounts widely different from each other, both of which, all things considered, we are bound to accept. Audubon and Wilson were the first to inform us concerning the nest and eggs, both of whom distinctly state that they breed in companies in hollow trees. Since the time of these writers, owing to various conflicting accounts, their manner of nesting has been considerably in doubt, but in 1889 light was thrown on the subject by Mr. Wm. Brewster, who wrote‡ as follows: "While in Florida during February and March, 1889, I questioned everybody whom I met regarding the nesting of the Parrakeet. Only three persons professed any knowledge on this subject. The first two were both uneducated men—professional hunters of alligators and plume birds. Each of them claimed to have seen Parrakeets' nests, which they described as flimsy structures built of twigs and placed on the branches of cypress trees. One of them said he had found a nest only the previous summer (1888), while fishing. By means of his pole he tipped the nest over and secured two young birds which it contained. This account was so widely at variance with what has been previously recorded regarding the nesting of this species that I considered it, at the time, as a mere fabrication, but afterwards it was unexpectedly and most strongly corroborated by Judge R. L. Long of Tallahassee. The latter gentleman . . . assured me that he had examined many nests of the Parrakeet built precisely as above des-

*Man. Orn., I, 1832, p. 546.

†Am. Orn., III, 1811, p. 90.

‡Auk, VI, 1889, p. 336.

cribed. Formerly, when the birds were abundant in the surrounding region, he used to find them breeding in large colonies in the cypress swamps. Several of these colonies contained at least a thousand birds each. They nested invariably in small cypress trees, the favorite position being on a fork near the end of a slender horizontal branch. Every such fork would be occupied, and he has seen as many as forty or fifty nests in one small tree. Their nests closely resembled those of the Carolina Dove, being similarly composed of cypress twigs put together so loosely that the eggs were often visible from the ground beneath. The twigs of the cypress seemed to be preferred to those of any other kind of tree. The height at which the nests were placed varied from five or six feet to twenty or thirty feet. Mr. Long described the eggs as being of a greenish white color, unspotted. He did not remember the maximum number which he had found in one set, but thought it was at least four or five. He had often taken young birds from the nest to rear or to give to his friends." It seems difficult to reconcile such testimony with the statements of Audubon and Wilson, already alluded to, yet it may be that, like some of our Owls, the Paroquet nests, according to circumstances, either in hollows or on branches.

In the collection of the National Museum is a series of eight eggs; the majority of them were laid in confinement, the remainder coming from Louisiana. These are pure white in color and average 27×35 mm.

According to Barton, writing in 1790, a flock of Paroquets appeared in January about twenty-five miles northwest of Albany, New York, causing great alarm among the simple Dutch folk who looked upon the advent of the birds as indicative of coming evil. Audubon also states,* that about 1807 they could be procured "as far northeast as Lake Ontario." This is presumably the most northern record for the species, and these are the only instances known of its occurrence in the Empire State. New Jersey and Delaware, as before stated, are without records, but in 1832 Nuttall informs† us that "straggling parties have been seen in the valley of the Juniata in Pennsylvania"; and Turnbull, in 1869, writes‡ that it occurs at rare intervals in the southern part of the State.

* Birds of Am., Vol. IV, p. 309.

† Man. Orn., I, 1832, p. 546.

‡ Birds of Eastern Pa., p. 4, 1869.

For Maryland and the District of Columbia the records are limited to the flock that appeared at the Capital in 1865; this flock, according to Smith and Palmer,* was a large one, as it left numbers of its company with the gunners who were on the marshes at the time of its appearance; but unfortunately there is evidence of only one specimen having been preserved.

For the Virginias I quote from the admirable paper by Rives ('Birds of the Virginias')† who says: "Although a flock was seen as recently as 1865 [the same as that recorded for Maryland and the District], it can no longer be regarded as a Virginia bird, though formerly not uncommon." Catesby also mentions‡ the Paroquet in 1731 as ranging as far north as Virginia, but, as was usual at that time, omitted any definite locality. North Carolina has but one record—that by Catesby, but in South Carolina Burnett gives it§ as being resident in the Pine Barrens in 1851, while Coues in his 'Synopsis'¶ writes: "This species is given in Prof. Gibbes' list, and appeared to have been in former times a common bird, but its occurrence has not been noted for years." Georgia furnishes a good example of a missing link in the chain of history; very little systematic work has been done in this State, and there appear to be no lists of the birds inhabiting it. It is plainly evident that the species formerly lived there although no record of it may exist.

Florida was at all times the home of the Paroquet, but it would appear from Taylor's account¶ that as recently as 1862 they were common throughout the State. In 1874 they were becoming scarce even here, although Ober reported** them as still abundant along the Upper Kissimmee River, and a few flocks seen near Okeechobee. In 1875 they visited Volusia County in immense numbers††, and in 1880 a large flock made its appearance, since when none have been seen in that locality. In 1885 a small colony was known to breed in Waukulla swamp, about

*Auk, V, 1888, p. 148.

†Proc. Newport Nat. Hist. Soc., Doc. VII, 1889-90, p. 64.

‡Nat. Hist. Carolina, Florida and Bahamas, 1731, p. 11.

§Proc. Bost. Soc. Nat. Hist., IV, 1851, p. 116.

¶Proc. Bost. Soc. Nat. Hist., 1868, p. 119.

¶Ibis, IV, 1862, p. 127-142, 197-207.

**Forest and Stream, II, 1874, p. 162.

††Forest and Stream, XXIV, 1885, p. 487.

twenty miles from Tallahassee,* and it may be supposed with a reasonable amount of certainty to occur there at present in moderate numbers. Four handsome specimens of this Parrot in my collection were taken at Thonotosassa, Hillsborough County, on April 25, 1887, by Mr. Chas. Steacy, who writes me that these are the only ones he has seen for some time, and that the occurrence of the birds in that vicinity has not come under his notice since the above date. Brewster,* writing in 1889, affirms that "A few are still found as far north as the Weekiva River bottom, while south of Kissimmee they are still actually abundant over a region of considerable extent." If this be true it is evident that the region must be confined mainly to the interior, as the value of the birds is so well known that had they appeared on the coast, some of the many collectors would have been almost certain to have observed them. In partial support of both Mr. Brewster's statement and my theory, the following from Mr. W. E. D. Scott† may be of value: "With the settlement of the State this species has gradually disappeared till at the present time it must be regarded as a rare bird, though once so abundant and conspicuous. In the winter of 1875-76 the birds were very abundant at Panasoffkee Lake, and the same season I saw many flocks on the Ocklawaha River. About Tarpon Springs they were formerly very common. . . . For the last five years but one small flock of some ten birds has been seen in this vicinity. . . . At a point in Hernando County, in the vicinity of a place called Linden, the birds are still fairly common, and I have procured a series from that place the past winter (1888-89). . . . Mr. Atkins writes me: 'I have in my collection several specimens, and have seen others from time to time that were taken in the Okeechobee region where the birds seem to be fairly common.'"

In the spring of 1889, Mr. F. M. Chapman made careful search for the Paroquet on the eastern coast of Florida in the vicinity of Micco.‡ It was his good fortune to find "in all about fifty birds, in flocks of from six to twenty," thus proving that they are still to be found in the wilder and less thickly settled portion of the State, while Mr. F. S. Risely, of Rockledge, in-

*Auk, VI, 1889, p. 337.

†Auk, VI, 1889, p. 249.

‡Proc. Linn. Soc. N. Y., 1890, p.

forms me that he had one specimen brought to him the past winter (1890-91).

In 1859, Gosse speaks* of the species in such terms as to leave us somewhat in doubt as to whether it was of common occurrence in Alabama at that date, while in 1878 (the latest record from the State), Mr. N. C. Brown refers to it† as being rather uncommon in the vicinity of Coosada during his stay, and invariably quite shy.

The following account by Prof. Wailes‡ for Mississippi is probably as full as any, and appears to be about the only published record for that State: "The Paroquet was formerly very numerous, and often resorted in large flocks to inhabited districts and made himself familiar with the apple orchards. Now (1854) they have become quite scarce and shy, and are seldom seen in flocks of more than half a dozen together." In 1875, Beckham writes,§ "Judge Lawrason, who lives in the country near Bayou Sara, Louisiana, informs me that as late as 1875 he found the Carolina Paroquet every year at his place, but since that date has neither seen nor heard of any in his locality."

For Texas we have but one record,|| which informs us of its being "Quite numerous in the eastern part of the State in 1853, and confining itself to the timberlands of the large streams." This rather vague statement makes it somewhat difficult to place the boundary line. I have placed it, however, between the Brazos and Trinity rivers,—covering to a large extent the same territory over which the Ivory-billed Woodpecker (*Campephilus principalis*) formerly ranged.¶

In company with the Texas record is a statement by the same author that the species is to be found in the Indian Territory; while Cooke informs us** that "Formerly numerous flocks were found all over the reservation, but that at present (1885) it is almost extinct in the eastern part of the Territory, though a few are still found around Caddo, while in the western and

* Gosse, Letters from Alabama, 1859, p. 298.

† Bull. N. O. C., IV, 1879, p. 11.

‡ Geol. & Agric. of Miss. 1854, p. 324.

§ Auk, IV, 1887, p. 303.

|| Woodhouse, Sitgreaves's Rep., p. 89.

¶ Auk, VIII, 1891, p. 14.

** Bird Migr., Miss. Val. 1885, p. 124.

middle parts they are almost as common as ever." In 1880 Mr. D. C. Harrison of the Geological Survey was stationed at Spencer Academy, some twenty miles from Caddo; he found the birds very abundant, describing them as appearing in large flocks like Blackbirds, and on his return brought six specimens with him as mementos of the trip. Mr. A. W. Butler, to whom I am indebted for the following recent information, informs me that an army officer stationed at Fort Gibson, saw and recognized a flock in 1889, which alighted in a tree directly over the spot in which he and his men were encamped. This gentlemen was acquainted with the birds in their Florida haunts, so that there was no chance for error. He reported the fact to Mr. H. K. Coale, who gave the information to Mr. Butler.

For Arkansas there appears to be but one record, and that by Baird, Brewer and Ridgway in 1874, who speak of the occurrence of the Parroquet in considerable numbers there at that date, and of their former abundance throughout the Mississippi Valley.

Audubon informs us that they were plentiful in Ohio about 1807, and could be procured as far north as Lake Erie. Mr. Butler informs me that about 1832 Mr. W. B. Seward found young birds in a hollow tree-top that had been blown down, in White River Valley, about twenty miles from Indianapolis, Indiana. This record, according to Mr. Butler, is thoroughly reliable, and is probably the most northern breeding ground known. In 1856 Haymond wrote* that they were formerly abundant along the White Water River, but that none had been seen for many years, while in the Report of the Geological Survey of the State, published in 1869, Coxe in his list of the birds of Franklin County, records his seeing "a single flock in June many years ago; and old inhabitants say that in the early settlement of the county they were extremely common."

In the Smithsonian collection is a specimen (No. 12272), without date or locality, taken in Illinois by J. K. Townsend, and Pratten includes it in his list.† In 1889 Ridgway speaks of it‡ as "probably everywhere extinct within our borders, though fifty years ago it was more or less common throughout the State."

Kentucky and Tennessee each have one record. For the for-

* Proc. Phil. Acad. Nat. Sci., 1856, p. 293.

† Trans. Ill. State Agric. Soc. for 1853-54, 1855, p. 606.

‡ Nat. Hist. Surv. Ill., I, 1889, p. 399.

mer, Pindar mentions it* as very common in years gone by in Fulton County, and further states that stragglers are said to have been seen as recently as 1878. Wilson records† it for Tennessee as occurring along the Tennessee River in 1811. It undoubtedly occurred in Tennessee at about the same period as in Kentucky.

In the Smithsonian Report for 1864 (1865, p. 438), Hoy mentions it as occurring above Boonville, Missouri in 1854, while Cooke in his 'Bird Migration in Mississippi Valley' reports it as still present at Fayette in 1885 though almost extinct. Trippe speaks‡ of it as occurring in Decatur County, Iowa, as recently as 1873. A specimen in the Smithsonian collection is labeled "Michigan," without date or exact locality. In southern Wisconsin the birds are said to have been formerly quite common.

Coues, in his 'Birds of the Northwest,'§ speaks of the Paroquet in Nebraska as follows: "Among the more interesting ornithological results of Dr. Hayden's investigations, may be mentioned his discovery that this species is abundant at a higher point than is usually recognized," occurring "along the thickly wooded bottoms as far up the Missouri as Fort Leavenworth, possibly as high as the mouth of the Platte." Goss in 1883 mentions|| it as "formerly common in eastern Kansas, but not met with in the State for several years." Taylor in his 'Catalogue of the Birds of Nebraska'¶ refers to it as "Formerly abundant even in the eastern part of the State, but now rare if found at all."

Coues mentions** the occurrence of the Paroquet in Colorado in the following note: "Mr. E. L. Berthoud, of Golden, Colorado, writes under date of Dec. 2, 1876: 'I saw the Carolina Parrot at this place and at Denver, on the S. Platte in 1860-61, and on the Little Thompson River, Col., in 1862.'" This is the most western record for the species, and the only one, so far as known, for the State.

This enumeration by States enables us to draw a comparison by dates between the abundance and wide distribution of the species

* Auk, VI, 1889, p. 313.

† Am. Orn., 1811, p. 91.

‡ Proc. Bost. Soc. Nat. Hist., XV, 1873, p. 233.

§ Coues, Birds N. W., 1879, p. 296.

|| Birds of Kansas, 1883, p. 20.

¶ Taylor, Cat. Birds of Neb., 1887, p. 114.

** Bull. N. O. C., II, 1877, p. 50.

at an early period, and the proportionally few remaining individuals and extremely limited area of today. In 1790-1805 they ranged at times as far north as Albany and Lake Ontario, New York, and as late as 1869 were known in the East in southern Pennsylvania. Another decade (1878) saw stragglers in the Mississippi Valley as far north as the junction of the Ohio and Mississippi Rivers, while the past ten years has witnessed their being driven almost exclusively to southern Florida and the Indian Territory. So scarce have they become within this latter period, that it would appear safe to give as their present habitat the minimum areas represented in black, which cover the localities of capture or observation for the last five years.

In concluding, I wish to express my gratitude for the kindness shown me in compiling the present paper. More especially am I indebted to my friend, Mr. Robert Ridgway, and to the Assistant Secretary of the Smithsonian Institution, Dr. G. Brown Goode, for the use of the Museum material, and to Mr. A. W. Butler for valuable information from his own still unpublished notes on the same subject. To these gentlemen I wish to express my warmest thanks and appreciation.

RECENT LITERATURE.

Sharpe's 'Review of Recent Attempts to Classify Birds.'*—Of the many important addresses, memoirs, and reports read before the Second International Ornithological Congress held at Budapest in May last, we have space to notice at present only Dr. Sharpe's notable address on the Classification of Birds. Only the first 55 pages, or a little more than one half of the address, is devoted to a review of previous work, the remainder being given to a formal exposition of the author's own views on the subject. The review practically begins with Huxley's 'Classification of Birds,' published in 1867, and thus relates to the work of the last twenty-five years. An epitome, with some critical comment, is given of Huxley's system, of Garrod's scheme (published in 1874), of Forbes's (1884), of Sclater's (1880), of Newton's views (1884), Reichenow's system (1882),

*A Review of Recent Attempts to Classify Birds; an Address delivered before the Second International Ornithological Congress on the 18th of May, 1891. By R. Bowdler Sharpe, I.L.D., F. L. S., etc. (Zoological Department British Museum.) Budapest, 1891. (Published at the Office of the Congress.) Roy. 8vo. pp. 90, pll. xii.

of Stejneger's scheme (1885), of Fürbringer's (1888), of Seebohm's (1890), Shufeldt's Classification of the Passeres (1889), Heine and Reichenow's (1882-90), and various other special works and papers bearing on the subject. The various schemes are discussed and compared at some length *passim*, and presented in tabular form for ready comparison. Fürbringer's diagrams are reproduced, and similar ones presented of other systems to further facilitate comparison. In respect to American workers, Mr. Sharpe makes pleasing references to the labors of Coues, Shufeldt, Lucas, and Jeffries, and especially to Stejneger, of whose work he says: "... and I must emphatically state my conviction that, with the exception of some of Professor Elliott Coues's essays, there never has been a popular work on birds so well conceived as the 'Aves' volume of the 'Standard Natural History,' or one which, professedly popular in its aims, contains such an amount of sterling new and original work."

Dr. Sharpe prefaces his own scheme with some well-considered remarks on the slow process of building up a natural classification of birds, which he compares to the construction of a building to which each laborer in the field contributes his quota. "Sometimes the structure has to be altered and amended but it is seldom that a labourer, whose soul is in his work, retires without having added something in the shape of useful materials. It takes a long time—it may be years of study—before a sound brick is baked. . . . It is certain, however, that by this 'brick'-making materials for the structure of the Classification of Birds will be slowly gathered." He has also a word for the critic, who pulls down but never builds up. This is followed by some practical and very sensible remarks upon the exhibition of bird material in museums, and on the general subject of the study of birds. He says: "If the system of teaching by artistic groups be adopted, then only the principal forms would require illustration, and a representation of the leading type of each order or sub-order would suffice. A supplementary gallery might be provided, in which types of each family, subfamily, and genus of birds would be exhibited, but lower than genera I would never descend in a public exhibition. The student of species should find his material in the 'study' series, . . . and there each species should be amply illustrated by actual specimens showing the plumage of both sexes at all times of the year, young birds in all stages, moulting individuals, and a full series exhibiting geographical distribution and variation in the species, even if it requires a series of specimens. The days have gone by when the description of a new species was the be-all and end-all of an ornithologist's hopes. The warfare over priority of nomenclature is fast showing signs of waning. . . . It is time, however, that by some such means as an International Congress of Ornithologists the names of the species of birds were settled once and for all, in order that we may turn our attention to the far more important facts of geographical distribution and life-history of species. We are approaching a time when the study of rainfall and climate, of altitude and locality, and even the conditions of weather under which a specimen was procured, will be considered indis-

pensable for the minute study which is to be our portion in the not very distant future." (Doubtless Dr. Sharpe is not unaware that these important factors have already received much attention in some quarters, having in fact been uppermost in the minds of many American students for the last two decades at least.)

Dr. Sharpe then proceeds to develop and illustrate his own ideas of the classification of birds and their arrangement by means of his "ideal museum," in elaborating which he has frequent recourse to habits, manner of nesting, character of the eggs, mode of roosting, the character of the nestling in respect to clothing, etc., in deciding points of affinity and relationship, as well as to strictly anatomical characters. Each leading group of the non-Passerine birds is in turn reviewed and located; the Passeres, having been recently treated by him in a special paper, are briefly disposed of by the correction of the position of a few genera and families in the light of later discoveries. His views of the relationships of the various subdivisions of the Oscines is, however, diagrammatically expressed in Plate XI.

Then follows in linear sequence a tabular list of the higher groups and their families, with diagnoses in footnotes, illustrated by a diagram showing comparatively the system of the author and those of Fürbringer and Seebohm. He puts forward his scheme as of course a tentative one, in the hope of being able to renew the attack at some future time. It differs at many points from any of its predecessors, whether for the better or for the worse is beyond the scope of the present notice to inquire. The number of orders is 34, and of suborders 78. He concludes this masterly address — in which throughout he skilfully imparts a certain charm to a strictly technical subject — with a few personal reminiscences of interest to the systematic ornithologist. — J. A. A.

Hornaday's Handbook of Taxidermy and Zoölogical Collecting.* — Taxidermy, the handmaid of Zoölogy, has already become one of the fine arts, requiring the skill and other qualities of both the sculptor and the painter, and capable of yielding results comparable with the masterpieces of either. The expert collector, and still more the skilled taxidermist, is the indispensable ally of the professional naturalist and the museum-builder. On the intelligence and alertness of the former and

*Taxidermy | and | Zoological Collecting | A Complete Handbook for the Amateur Taxidermist, | Collector, Osteologist, Museum Builder, | Sportsman and Traveller | By | William T. Hornaday | For eight years Chief Taxidermist of the U. S. National Museum; for seven years | Zoological Collector and Taxidermist for Ward's Natural Science Establishment; late Superintendent of the National Zoological Park; | author of 'Two Years in the Jungle,' etc. | With Chapters on | Collecting and Preserving Insects | By W. J. Holland, Ph.D., D.D. | Chancellor Western University of Pennsylvania; . . . [= 3 lines titles.] | Illustrated by Charles Bradford Hudson | and other Artists | 24 Plates and 85 Text Illustrations | New York | Charles Scribner's Sons | 1891. -- 8 vo. pp. xix + 362.

the skill of the latter depend much of our progress in systematic zoölogy and the very existence of creditable museums of natural history.

Mr. Hornaday's work is evidently, as he says, 'an affair of the heart.' Mr. Hornaday, as a taxidermist, has ever been an enthusiast of high aims, a leader in the field of what may be termed the 'New Taxidermy.' Evidences of his exceptional skill and talent have long graced our leading museums, notably the National Museum at Washington, where for eight years he was in charge of the Department of Taxidermy. In placing before the public, in the form of a 'manual,' the results of his long experience, both in the field and in the work-shop, he has conferred a boon not alone upon collectors and taxidermists, but upon zoölogical science in general. No work, it is safe to say, in any sense comparable with this, has ever been written; and the impulse it must give to intelligent field work and scientific taxidermy is almost beyond estimate. It certainly must fill, as few works ever do, the proverbial 'long-felt want' in this particular field. The book is tersely and vigorously written, and here and there the author displays much cleverness in his way of 'putting things.'

The 'Manual' consists of six Parts as follows: 'Part I, Collecting and Preserving.' This contains eleven chapters, treating of the following subjects: (1) 'The Worker, and the Work to be Done'; (2) 'Outfits, and Hints on Hunting'; (3) 'How to Select and Study Fresh Specimens'; (4) 'Treatment of the Skins of Small Mammals'; (5) 'Collecting and Preserving the Skins of Large Mammals'; (6 and 7) 'Collecting Skins of Birds'; (8) 'Collecting Reptiles'; (9) 'Collecting Fishes'; (10) 'Collecting Marine Invertebrates'; (11) 'Collecting Birds' Eggs and Nests.'

'Part II,' constituting the main body of the work (pp. 99-257), is devoted to 'Taxidermy,' and treats in detail the technique of the subject in all its branches. 'Part III' treats of 'Making Casts' of mammals, fishes and reptiles. 'Part IV' is devoted to 'Osteology,' and gives detailed directions for collecting, macerating, cleaning and mounting.

'Part V' (pp. 305-338), on 'The Collection and Preservation of Insects,' is by Dr. W. J. Holland, the well-known lepidopterist. 'Part VI, General Information,' treats, among other things, of 'Insect Pests, and Poisoning,' with also a chapter on 'The Best Books of Reference.'

The illustrations, numbering 23 plates and 104 cuts in the text, render clear many of the obscurer details of the subject, from skinning mammals and birds and making up the skins, to the preparation of a manakin for a bison or tiger, the 'internal structure' of a mounted bird, or the preservation of nests and eggs.

The amount of detailed information here given — much of it never before consigned to print — is seemingly sufficient to help any bright collector or amateur taxidermist over most of the many difficulties that lie in his path. Not a little practical and healthful advice is given, *passim*, on a variety of pertinent topics, from the "postage-stamp style of collecting by boys who have no real love for natural history" (which is severely condemned), to the important subject of labels, measurements of speci-

mens and field notes. The importance of care and thoroughness in relation to gathering, preserving and labelling is at all times dwelt upon with emphasis. Too truly, as Mr. Hornaday observes, "The lives of hundreds of thousands of wild birds have been sacrificed to no purpose by persons claiming to be ornithological collectors, and yet who had not the knowledge, skill, or industry to make up good bird skins. . . . The ability to make up fine, clean, shapely, well-preserved skins, and make them rapidly also, is a prime requisite in any one who aspires to be sent off to interesting 'foreign parts' to shoot, collect, and see the world—at the expense of some one else." We are glad to see that in the matter of bird skins the best modern methods of 'making up' are described and fully illustrated with cuts; and that proper directions are given for insuring the highest scientific value of all kinds of bird specimens. We wish we could extend this statement to include all the author says about mammals as well, but sad experience leads us to make use of the present opportunity to put in an earnest protest against the "salt-and-alum baths," so unreservedly recommended for the preservation of mammal skins for mounting. "In only two or three instances," says Mr. Hornaday, "have I ever known it to change the color of the hair in the least." Our experience, on the contrary, has been widely different, even when the bath was compounded in accordance with Mr. Hornaday's own recipe. The skins of many small mammals, such as red squirrels, ground squirrels, spermophiles, kangaroo rats and mice, and deer mice, quickly change in color from immersion in it, to such an extent as to be wholly unrecognizable by their coloration, and hence worthless for any scientific purpose, yellowish, rufous, and pale browns becoming dull red. On the other hand, some colors appear to be not in the least affected. But in many foreign mammals it would be impossible to tell whether or not there had been a change of color. Should the change be not detected, as may readily happen, the 'salt-and-alum bath' may yet prove a prolific species maker, as it has already narrowly escaped being in several instances well known to the present writer. Ordinary alcohol, as commonly used, is not always to be trusted where the question of color is at stake, while the so-called 'wood alcohol,' or methyllic spirits, is absolutely ruinous, being worse even than the salt-and-alum bath. Fortunately birds are not often preserved in antiseptic solutions, except for strictly anatomical purposes; besides, their colors are, as a rule, less liable to change from such treatment than those of mammals.

Beyond question, Mr. Hornaday's book marks the beginning of a new era in the history of both natural history field work and taxidermy, and naturalists cannot be too grateful for his admirable manual of 'Taxidermy and Zoölogical Collecting.'—J. A. A.

Butler's Birds of Indiana *—This excellent catalogue of the Birds of

*The Birds of Indiana, with Illustrations of Many of the Species. Prepared for the Indiana Horticultural Society, and Originally Published in its Transactions for 1890. By Amos W. Butler, of Brookville. 8vo, pp. 135.

Indiana gives 305 species as the number thus far actually known to occur in the State, and a 'Hypothetical List' of 79 species, "which have been taken in neighboring States, or whose known range seems to include Indiana." Both lists have evidently been prepared with great care, and are very satisfactorily annotated, the previously published records of the capture of the rarer species within the State being duly cited. The annotations throw much new light on the distribution of many of the species within the State. The introduction gives the origin of the present Catalogue, a brief account of the leading topographical features of the State, a transcript of 'An Act for the Protection of Birds, their Nests and Eggs' (closely modelled after the New York law), passed in March last by the State Legislature, and due acknowledgments for aid in the preparation of the work. This is followed by a 'Bibliography' of Indiana ornithology (pp. 10-14), and a list is also given (pp. 117-119) of persons contributing notes used in the preparation of the Catalogue. The author also states that through the coöperation of Dr. C. Hart Merriam, Chief of the Division of Economic Ornithology and Mammalogy of the United States Department of Agriculture, he was "enabled to examine the migration reports, covering the State of Indiana for a series of years." The illustrations consist of a large number of cuts from Coues's 'Key to North American Birds,' secured through the courtesy of the publishers of that well-known work. A very full index (pp. 121-135) very fittingly closes this admirable and exceedingly welcome exposition of Indiana ornithology.—J. A. A.

Colburn and Morris's 'Birds of the Connecticut Valley in Massachusetts.*—This briefly annotated list of 212 species forms a convenient résumé of the bird life of the region considered. The list "contains the names of the birds of the Connecticut Valley in Massachusetts, so far as they are known to the authors, either by personal observation or from consulting the works of the ornithologists who have described the birds of New England"; but as these works are not cited in the annotations, it is not always evident whether the statements made rest on the authority of the authors of the present paper or on previously published records. Hence it is sometimes difficult to distinguish whether or not a record or statement is here for the first time recorded. As the authors state that the list was prepared "for their own use, and not for general publication," perhaps we should be lenient in our criticism, yet we can hardly refrain from calling attention to one or two points, in the interest of sound work. We regret to see that some species are admittedly included that may, on "further observation," require "elimination." These are presumably given on the authority of others, and probably on previously published records, but unless so stated in the list the responsibility rests on its authors. Some of the omissions from the list are hard to explain,

*The Birds of the Connecticut Valley in Massachusetts. By Wm. W. Colburn and Robert O. Morris. 16 mo. pp. 24. Springfield, Mass., 1891. (Privately printed.)

except on the ground of haste or carelessness, since they are duly recorded on unquestionable authority in the works referred to by the authors in their preface,—e. g., *Picoides arcticus*, *Otocoris alpestris*, *Empidonax flaviventris*, *Quiscalus quiscula aeneus*, *Ammodramus henslowi*, *Melospiza lincolni*, *Dendroica palmarum hypochrysea*, *Seiurus motacilla*, *Anthus pennsylvanicus*, etc. *Larus argentatus* should of course be *L. argentatus smithsonianus*. The list is attractively gotten up, and is remarkably free from typographical errors; yet it is marred by a blemish one would hardly look for in a scientific publication of the present day, namely, the use of capital initial letters for *all* specific and subspecific names. Evidently the authors allowed their own good judgment to be swayed by the bad counsels of the printer.—J. A. A.

Merriam's List of Birds observed in Idaho.*—The ornithological results of Dr. Merriam's 'Biological Reconnaissance of south-central Idaho' during the season of 1890, consists of an annotated list of 158 species, 94 of them recorded for the first time for the State, and the discovery of a new Owl, allied to *Megascops flammeolus*, and named *M. flammeolus idahoensis*. This new form differs from *M. flammeolus* in being smaller and paler. A well-executed colored plate accompanies the description. Besides the general list there is a special 'List of Birds noted in the Saw Tooth Mountains, at or near Saw Tooth or Alturas Lake, September 25 to October 4, 1890' (pp. 19, 20), numbering 43 species, and various references to birds of particular localities in the general introduction.

As stated by Dr. Merriam, Idaho has thus far remained a veritable *terra incognita*, so far as detailed knowledge of its natural history is concerned, less being known of it than of any other State or Territory in the Union. The present report on the work done there during the season of 1890 occupies about 120 octavo pages (North American Fauna, No. 5), of which about 30 are devoted to an exposition of the physical characters and life zones of the region explored, and about 60 to a detailed report on the mammals obtained, of which 12 of the 67 species here enumerated are described as new. It is needless to say that much light is thrown upon the physical features of the region and their relation to its faunal and floral characteristics. Considering the limited time spent in field work and the small force of assistants employed, a surprisingly large amount of work was accomplished.—J. A. A.

Maynard's 'Contributions to Science.'†—The 'Contributions' contain articles relating to nearly all branches of natural history. Only the fol-

*Annotated List of Birds observed in Idaho during the Summer and Fall of 1890, with Notes on Species previously recorded from the State. By Dr. C. Hart Merriam. North American Fauna, No. 5, July 1890, pp. 89-108.

†Contributions to Science. By Charles J. Maynard. Illustrated with hand-colored plates, drawn on stone by the Author. Vol. I, "April, 1889-Jan. 1890." Newtonville, Mass.: Published by the Author. 8vo. pp. 204, p!l. xvi. with numerous cuts in the text. [No. 3, dated "October, 1889," was received March 24, 1890; No. 4, dated "January, 1890," was received April 2, 1891.]

lowing are ornithological: (1) 'Description of an apparently New Species of Warbler from Jamaica' (No. 1, p. 30, pl. iii, fig. 1, head). This is named *Dendroica ignota*, and is said to bear a general resemblance to *D. palmarum*. It is based on a single specimen in the Museum of the Institute of Jamaica, at Kingston, Jamaica, where the type remains, "labelled 'Hamstead, St. Andrews, April 4th, '79. J. Goodlet.'"

(2) 'The Sterno-trachealis as a Vocal Muscle' (*ibid.*, pp. 35-37, pl. iii, fig. 2-14). This muscle is claimed to be a true vocal muscle, and hence Mr. Maynard assigns six pairs of vocal muscles to the Oscines.

(3) 'Notes on Some Jamaican Birds' (*ibid.*, pp. 39, 40). Notes on five species. *Rallus coryi* is recorded from Jamaica, and *Helinaia swainsonii* is judged to be "a quite common winter bird in Jamaica," from the number of skins in the Museum of the Institute of Jamaica.

(4) 'Description of a supposed New Species of Gannet' (*ibid.*, pp. 40-48, and No. 2, pp. 51-57, pl. v, fig. 1 and 2, heads of adult and young). This, named *Sula coryi*, is the *Sula cyanops* of Cory from Cayman Brac and Little Cayman (*cf.* Auk, VI, 1889, pp. 31, 32). A detailed description is given of the various phases of plumage, from the nestling to the adult; also a very full account of the habits of the species. At least 10,000 of these Gannets were estimated to be breeding "in the gannetry at Little Cayman." It has the form and size of the Red-faced Gannet (*Sula piscator*), but differs from it in having the tail wholly white.

(5) 'The Vocal Organs of the American Bittern, *Botaurus lentiginosus*' (No. 2, pp. 59-68, pl. vi, and 6 figs. in text). This is an attempt to explain, on anatomical grounds, the production of the singular pumping sounds this species emits. By a singular coincidence, Mr. Maynard's studies appear to have been based on the very individual which formed the basis of Mr. Bradford Torrey's paper on this species in 'The Auk' (VI, 1889, pp. 1-8); they tend to confirm Mr. Torrey's hypothesis there given.

(6) 'Notes on the Anatomical Structure of the Crowned Crane' (*ibid.*, pp. 80-82).

(7) 'On the probable Evolution of the Totipalmate Birds, Pelicans, Gannets, etc.' (*ibid.*, pp. 82-88). This is a paper of considerable interest, but not easy to summarize. The Pelicans are considered to be the central and oldest type, the Tropic Birds and the Frigate Birds the most specialized. The American Gannets are believed to be recent offshoots from two stocks, represented by *Sula sula* and *S. cyanops*.

(8) 'The Sound-producing Organs of Birds' (No. 3, pp. 101-106, figs. 16-19, and No. 4, pp. 164-167, figs. 40, 41). The species particularly considered are the Bohemian Waxwing, the American Woodcock, the Evening Grosbeak, the American Barn Owl, the Ani, and the American Flamingo.

(9) 'Notes on the Anatomical Structure of three Species of Gannets' (*ibid.*, pp. 116-123, figs. 21-27; and No. 4, pp. 151-153, figs. 36-39). These are *Sula sula*, *S. coryi*, and *S. bassana*.

(10) 'Singular Cause of the Death of a White-bellied Nuthatch' (*ibid.*, p. 124, fig. 28). An acorn shell transfixing by the bird's bill could not be dislodged, and caused the death of the bird through its worry and struggle to dislodge the obstruction.

(11) 'Diseased Feet of a Chipping Sparrow' (*ibid.*, p. 125, fig. 29). Both feet affected by a "cancerous growth."

(12) The Arrow-headed Warbler of Jamaica, *Dendroica pharettra* (*ibid.*, p. 136, pl. ix). Figured, with a short note on its history.

(13) 'The Nictitating Membrane and Crystalline Lens in the Mottled Owl' (*ibid.*, pp. 136, 137, figs. 34, 35).

(14) 'Notes on the Young of Certain Species of Birds' (*ibid.*, pp. 140-147, and No. 4, pp. 159-163, pls. xi-xiv, and 7 figs. in the text). The young of the following species are figured: Man-of-War Bird, young 2 days old, pl. xiv; Belted Kingfisher, newly hatched, fig. 36; Cory's Gannet, pl. xi, young, 2 days old; Common Gannet, pl. xii, 2 days old; Audubon's Shearwater, fig. 36*, 1 day old; Least Tern, fig. 36**, 1 day old; Bob-white and Ruffed Grouse, about 7 days old, pl. xiii; Rough-winged Swallow, few days old, fig. 38; Worm-eating Warbler, about one week old, fig. 39; Florida Mottled Owl, one week old, fig. 40. There is much interesting comment on the various species figured.

(15) 'Notes on West Indian Birds' (No. 4, pp. 171-181). This paper contains a long account of the habits of the Bahama Wood Star (*Doricha evelyna*), and shorter accounts of the Lyre-tailed Hummingbird (*D. lyrura*), Ricord's Hummingbird (*Sporadinus ricordi*), the Plumbeous Thrush (*Mimocichla plumbea*), and the Red-legged Thrush (*M. rubripes*).

(16) 'Notes on the Southward Migration of the White-bellied Swallow, *Hirundo bicolor*' (*ibid.*, pp. 186, 187). Its gradual retreat southward from Woods Hole, Mass., to Florida, with the advancing cold weather of autumn, is noted.

These papers contain much original and interesting matter, as indicated by the above-given titles and comment.—J. A. A.

Minor Ornithological Publications.—Since last noted in these pages 'The American Field' (Vols. XXIX-XXXIV, 1888-1890) has contained the following articles and notes of interest to ornithologists (Nos. 2015-2112).

The American Field.

2015. *Game Destroying Hawks.* By W. C. A[very]. 'The American Field,' Vol. XXIX, Jan. 7, 1888, p. 7.

2016. *English Sparrow Catching.* By W. T. Hill. *Ibid.*, Jan. 14, 1888.

2017. *The Grouse Family.* By Crocus, W. A. DeForest, and Ranger. *Ibid.*, Jan. 21, 1888, p. 55. — Drumming of *Bonasa umbellus*.

2018. *The Woodcock.* By Killbuck. *Ibid.*, Jan. 28, 1888, pp. 79-80.

2019. *Snipes Wintering in the North.* By Clarence A. Farnum. *Ibid.*, Feb. 4, 1888, p. 104. — *Gallinago delicata*.

[American Field.—Continued.]

2020. *The Ruffed Grouse*. By Roxey Newton. *Ibid.*, Feb. 11, 1888, p. 126.
2021. *The Woodcock*. By A. Guthrie. *Ibid.*, Feb. 18, 1888, p. 150.
2022. *The Drumming of the Ruffed Grouse*. By Long Lake. *Ibid.*, Feb. 25, 1888, p. 175.
2023. *Snipes Wintering in the North*. By 'Bluebill.' *Ibid.* — *Gallinago delicata*.
2024. [Tame Ruffed Grouse.] By Arthur E. Douglas. *Ibid.*
2025. *Drumming of the Ruffed Grouse*. By F. G. Sargent, E. Orcutt, and Picus. *Ibid.*, March 10, 1888, pp. 222, 223.
2026. *Drumming of the Ruffed Grouse*. By H. E. Jones. *Ibid.*, March 17, 1888, pp. 246, 247. — Also contains a note on *Meleagris gallopavo*.
2027. *Drumming of the Ruffed Grouse*. By Old Bart and Algonquin. *Ibid.*, March 24, 1888, p. 271.
2028. *The Drumming of the Ruffed Grouse*. By E. Tulley and A. A. Case. *Ibid.*, March 31, 1888, p. 295.
2029. *Propagation of Quails*. By C. W. Marsh. *Ibid.*, April 21, 1888, p. 366. — *Colinus virginianus*.
2030. *Drumming of the Ruffed Grouse*. By L. P. Wilmot, Old Foggy, and N. P. Leach. *Ibid.*
2031. *The English Sparrow*. By Seth Green and Birdo. *Ibid.*, April 28, p. 390.
2032. *Drumming of the Ruffed Grouse*. By Jackals, C. A. R., and Mahaiwe. *Ibid.*, May 5, 1888, p. 414.
2033. *The English Sparrow*. By Phil. and G. H. E. *Ibid.*
2034. *The English Sparrow*. By E. H. Lathrop, C. A. R., and N. *Ibid.*, May 12, 1888, p. 438.
2035. *The Propagation of Quails*. By A. W. Burnham. *Ibid.* — *Colinus virginianus*.
2036. *The English Sparrow*. By Marlin. *Ibid.*, May 19, 1888, p. 462.
2037. *Ruffed Grouse in Confinement*. By Occasional. *Ibid.*
2038. *The Great Auk*. By W. A. Stearns. *Ibid.*, May 26, 1888, p. 487.
2039. *The English Sparrow*. By G. H. E., J. W. E. Clarke, and H. Malcolm. *Ibid.*, June 2, 1888, p. 511.
2040. *Drumming of the Ruffed Grouse*. By Willie F. Pierson, A. A. Case, and F. A. S. *Ibid.*
2041. *Wandering Albatross in Puget Sound*. By Silalicum. *Ibid.* — See also No. 2044.
2042. *The English Sparrow*. By Old Dominion, Elliott Coues, and Picus. *Ibid.*, June 9, 1888, p. 534.
2043. *Freaks of Birds and Animals*. By W. H. W. *Ibid.* — *Tymf nuchus americanus* and *Bonasa umbellus*.
2044. *Albatrosses on Puget Sound*. By Elliott Coues. *Ibid.* — Suggesting that the birds mentioned in No. 2041 may be *Diomedea exulans*.
2045. *The English Sparrow*. By Jno. H. Ward and William Poor Paresinger. *Ibid.*, June 16, 1888, p. 558.

[American Field.—Continued.]

2046. *The English Sparrow*. By G. H. E., G. R. W., and Wacoutah. *Ibid.*, June 30, 1888, p. 606, 607.
2047. *The English Sparrow*. By Lothar Harms and Geo. Greene. *Ibid.*, Vol. XXX, July 7, 1888, p. 6.
2048. *The Skylark*. By Geo. Greene. *Ibid.*—Habits of *Otocoris a. praticola*.
2049. *The English Sparrow*. By G. H. E. Church, Algonquin, and G. W. B. *Ibid.*, July 14, 1888, pp. 30, 31.
2050. *The English Sparrow*. By Lynx and Algonquin. *Ibid.*, July 14, 1888, p. 79.
2051. *The English Sparrow*. By Congaree. *Ibid.*, Aug. 4, 1888, p. 102.
2052. *The Chinese Pheasant*. By W. O. Blaisdell. *Ibid.*, Aug. 11, 1888, p. 128.
2053. [*The English Sparrow*.] By C. W. C. *Ibid.*
2054. *The Woodcock*. By Hay. *Ibid.*, Aug. 18, 1888, pp. 149, 150.
2055. [*Habits of Gallinago delicata*.] By S. R. N. *Ibid.*, Aug. 25, 1888, p. 175.
2056. *The Pelican*. By Sol Ace. *Ibid.*, Sept. 15, 1888, p. 246.
2057. *Birds of Prey in Illinois*. By Geo. Greene. *Ibid.*, Sept. 22, 1888, p. 269.
2058. [*Blue-winged Teal Eggs in September*.] By Fred F. Merrill. *Ibid.*, Oct. 6, 1888, p. 319.
2059. *The American Woodcock*. By Monoquet. *Ibid.*, Dec. 8, 1888, p. 457.
2060. [*Whistling of the Woodcock*.] By Washington A. Coster. *Ibid.*, Dec. 29, 1888, pp. 619, 620.—See also Vol. XXXI, Jan. 12, 1889, p. 30; Jan. 19, p. 54; Jan. 26, p. 79; Feb. 9, p. 128; and March 9, p. 223.
2061. [*Colinus virginianus in a Hole in the Ground*.] By J. C. S. *Ibid.*, Vol. XXXI, Jan. 12, 1889, p. 30.—See also Jan. 19, p. 54; Jan. 26, p. 79; Feb. 9, p. 127; Feb. 23, p. 176; and March 9, p. 222.
2062. [*Colinus virginianus in Confinement*.] By Henry N. Howell. *Ibid.*, Feb. 16, 1889, pp. 150, 151.
2063. [*Trochilus colubris on the Ground*.] *Ibid.*, March 9, 1889, p. 223.
2064. *The Woodcock as a Vocalist*. By James Hennessey. *Ibid.*, March 16, 1889, p. 247.
2065. [*Notes on Callipepla squamata* (?).] By J. W. P. *Ibid.*
2066. [*The Woodcock's Whistle*.] By Woodcock. *Ibid.*, March 30, 1889, p. 296.
2067. *Habits of the Quail*. By Muzzleloader., *Ibid.*, April 27, 1889, p. 399.—*Colinus v. texanus*.
2068. *A Loon in Town*. By M. Chill. *Ibid.*, May 25, 1889, pp. 498, 499.—*Urinator imber*.
2069. *Habits of Quails*. By Ram Rod. *Ibid.*, June 1, 1889, p. 523.—*Colinus vtrginianus*.

[American Field.—Continued.]

2070. [*Diving of the Mallard and other Ducks.*] By Algonquin. *Ibid.*, Vol., XXXII, July 6, 1889, p. 6.

2071. [*Note on the Wood Duck.*] By W. C. A[very]. *Ibid.*, Aug. 3, 1889, p. 104.

2072. *Days with the Upland Game Birds of America. The Snipe.* By F. Henry Yorke, M.D. *Ibid.*, Aug. 10, 1889, pp. 121-123; Aug. 17, pp. 145, 146; Aug. 24, pp. 169, 170; Aug. 31, pp. 194-196 — Chiefly about *Gallinago delicata*. The first of a series of sketches upon the habits of various game birds, in which considerable information is given under the guise of a narrative.

2073. *A Rara Avis.* By E. M. B. *Ibid.*, Aug. 24, 1889, p. 176. — *Ortalis vetula maccalli*.

2074. *A Male Bob-white Hatching a Set of Eggs.* By M. E. Allison. *Ibid.*

2075. [*Zenaidura macroura Nesting on the Ground.*] By Prof. J. C. Schuyler. *Ibid.*

2076. *Chondestes grammacus.* By W. C. A[very]. *Ibid.*, Aug. 31, 1889, p. 200. — At Greensboro, Ala.

2077. *Days with the Upland Game Birds of America. Plover.* By F. Henry Yorke, M.D. *Ibid.*, Sept. 7, 1889, pp. 217, 218; Sept. 14, pp. 241-243.

2078. [*A Male Bob-white Incubating.*] By W. C. A[very]. *Ibid.*, Sept. 7, 1889, p. 223.

2079. *Habits of the Woodcock.* By E. S. Gordon. *Ibid.*, Sept. 14, 1889, p. 248.

2080. *Days with the Upland Game Birds of America. Woodcock.* By F. Henry Yorke, M.D. *Ibid.*, Sept. 21, 1889, pp. 265, 266; Sept. 28, 1889, pp. 291-293; Oct. 5, 1889, pp. 313, 314; Oct. 12, 1889, pp. 337, 338; Oct. 19, 1889, pp. 361-362.

2081. [*The Position of the Woodcock's Eyes.*] By S. W. G. *Ibid.*, Sept. 21, 1889, p. 271.

2082. [*Migrations of Colinus virginianus.*] Editorial. *Ibid.*, Sept. 28, 1889, p. 295.

2083. *Days with the Upland Game Birds of America. Pinnated Grouse.* By Dr. F. Henry Yorke. *Ibid.*, Oct. 26, 1889, pp. 385, 386; Nov. 2, pp. 409, 410; Nov. 9, pp. 433, 434; Nov. 16, pp. 457, 458; Nov. 23, pp. 481, 482.

2084. *Wild Pigeons in New York.* By Geo. W. La Rue. *Ibid.*, Oct. 26, 1889, pp. 387, 388.

2085. [*The Flight of Gallinago delicata.*] By T. [=F.] Henry Yorke. *Ibid.*, p. 391.

2086. *Days with the Upland Game Birds of America. Ruffed Grouse.* By Dr. F. Henry Yorke, *Ibid.*, Nov. 30, 1889, pp. 505, 506; Dec. 7, pp. 529, 530.

2087. *The Flight of the Snipe and Woodcock.* By F. Henry Yorke, M.D. *Ibid.*, Dec. 7, 1889, p. 534.

[American Field.—Continued.]

2088. *Days with the Upland Game Birds of America. Quail.* By Dr. F. Henry Yorke. *Ibid.*, Dec. 14, 1889, pp. 553, 554; Dec. 21, pp. 577, 578; Vol. XXXIII, Jan. 4, 1890, pp. 1, 2; Jan. 11, pp. 25, 26; Jan. 18, pp. 49, 50.
2089. *Vibratory Sounds produced by Birds.* By Geo. G. Cantwell. *Ibid.*, Dec. 14, 1889, p. 558.
2090. *Habits of Quails.* By Santee. *Ibid.*, Vol. XXXIII, Jan. 4, 1890, p. 2.
2091. *Habits of Quails.* By Emory P. Robinson. *Ibid.*, Jan. 11, 1890, p. 31.
2092. *Wild Pigeons.* By Geo. G. Cantwell, *Ibid.*—Their scarcity.
2093. *Days with the Upland Game Birds of America. Turkey.* By Dr. F. Henry Yorke. *Ibid.*, Jan. 25, 1890, pp. 73, 74; Feb. 1, pp. 97, 98.
2094. *Wild Pigeons and Mud Puppies.* By Morris Gibbs. *Ibid.*, p. 102.
2095. *Habits of Game Birds.* By Dr. F. Henry Yorke. *Ibid.*, Feb. 8, pp. 126, 127.—*Aix sponsa*, *Tympanuchus americanus*, *Philohela minor*, *Colinus virginianus*.
2096. [*Quail withholding Scent.*] By Dupont. *Ibid.*, Feb. 15, 1890, p. 151.
2097. *Habits of the Snipe.* By Siskiyou. *Ibid.*, March 1, 1890, p. 199.
2098. *Bird Life in Labrador.* By Winfred A. Stearns. *Ibid.*, April 26, 1890, p. 390; May 3, pp. 415, 416; May 10, pp. 438, 439; May 17, p. 462; May 24, pp. 486, 487; May 31, p. 511; June 7, p. 535; June 14, pp. 559, 560; June 21, pp. 583, 584; June 28, pp. 611, 612; Vol. XXXIV, July 5, pp. 6, 7; July 12, p. 31; July 19, p. 55; July 26, p. 79; Aug. 2, p. 104; Aug. 9, pp. 128, 129; Aug. 16, p. 153; Aug. 23, p. 176; Aug. 30, p. 199; Sept. 6, pp. 223, 224; Sept. 13, p. 247; Sept. 20, p. 271; Sept. 27, p. 295; Oct. 4, p. 319; Oct. 11, pp. 344, 345.
2099. [*Evening Grosbeak at Reading, Mass.*] By R. F. Loring. *Ibid.*, April 26, 1890, p. 391.
2100. [*Flight of the Snipe.*] By Horace Radish. *Ibid.*, May 10, 1890, p. 439.
2101. [*Notes on the Evening Grosbeak in Oregon.*] By Thos. G. Farrell. *Ibid.*, June 14, 1890, p. 560.
2102. *The Woodcock.* By W. C. A[very]. *Ibid.*, June 21, 1890, p. 584.—In Alabama.
2103. [*Robins and English Sparrows.*] By Chapman Chillcott. *Ibid.*, Vol. XXXIV, July, 12, 1890, p. 31.
2104. *Nesting of the Wood Duck.* By Will de la Barre. *Ibid.*, pp. 31, 32.
2105. *The Whisky Jack.* By Agamak. *Ibid.*, July 19, 1890, p. 55.—Habits of *Perisoreus canadensis*.
2106. [*Ravens and Turkey Buzzards.*] By E. H. Walker. *Ibid.*, Oct. 4, 1890, p. 320.
2107. *About Swans.* By W. A. S[tearns]. *Ibid.*, Oct. 25, 1890, pp. 391, 392.

[American Field.—Continued.]

2108. [*Passer domesticus* in Providence, R. I.] Editorial. *Ibid.*, Nov. 23, 1890, p. 512.
2109. *Changed Habits of Quails*. By M. G. Ellzey, M.D. *Ibid.*, Dec. 6, 1890, pp. 534, 535.
2110. *The Loon*. By Agamak. *Ibid.*, Dec. 13, 1890, p. 561.
2111. *Birds Observed in Alabama*. By W. C. A[very]. *Ibid.*, Dec. 20, 1890, p. 584; Dec. 27, pp. 607, 608.
2112. [*Snowy Owls*.] By A. B. Merrill, E. P. Shipley, and the Editor. *Ibid.*, Dec. 27, 1890, p. 608. —Recent occurrence in Massachusetts, Missouri, and Long Island, N. Y. — C. F. B.

Publications Received.—Bendire, Charles. Directions for Collecting Preparing, and Preserving Birds' Eggs and Nests. Bull. U. S. Nat. Mus., No. 39, Part D. Pp. 10.

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GENERAL NOTES.

The Yellow-legs (*Totanus flavipes*) Breeding in Ontario County, N. Y.—A pair of Yellow-legs (*Totanus flavipes*) remained this season and bred in a wet pasture in company with Killdeer (*Agialitis vocifera*) and Spotted Sandpipers (*Actitis macularia*). I do not know of any former record of their breeding in the County. The owner of the pasture, who is somewhat of a sportsman, and who first called my attention to the birds, would not permit their being disturbed, as he was anxious that they should make it a regular breeding ground. I repeatedly saw the birds at close quarters and fully identified them. During the latter part of June I noticed four young accompanying the parents who permitted of much closer approach than formerly. The young were about half grown and I endeavored to catch one of them but they eluded pursuit and finally escaped into a swamp close at hand.—B. S. BOWDISH, *Phelps, N. Y.*

The Turkey Vulture (*Cathartes aura*) in Ontario County, N. Y.—July 3 Charles Donelly, a young sportsman of this place, shot a Turkey Vulture (*Cathartes aura*) which was one of a flock of eight, seen in the vicinity of a marshy wood. On the 5th the bird was presented to me, and although in poor condition—being badly shot—was preserved as a good specimen. The bird is a female. The flock remained in the vicinity the entire afternoon, but the next morning were gone, and none have been seen since. This is, so far as I know, the first record of the bird being taken in the County.—B. S. BOWDISH, *Phelps, N. Y.*

An Abnormal Specimen of *Coccyzus maynardi*.—A peculiar example of what is probably *Coccyzus maynardi* has been lately received from Inagua, Bahamas. The bird has the general appearance and marking of *C. maynardi*, but the head, neck, and underparts are plumbeous gray, and the back and upper tail-coverts ash-gray. The quills are pale brown and the tail-feathers black, which, with the exception of the two central feathers are tipped with white. The bird, a female, was taken near Northwest Point, Inagua, May 28, 1891.—CHARLES B. CORY, *Boston, Mass.*

Further Note on *Otocoris alpestris praticola*.—In the April number of 'The Auk' mention was made of this bird's breeding in Butler County, Pennsylvania. I now desire to record its occurrence in the nesting season in Beaver County also, I having observed two individuals near the town of Beaver in June, on the 18th and 25th of the month respectively. In this connection it may be interesting to note that Dr. B. H. Warren has recently, as he informs me, taken the young in the mountainous region of Lycoming County.—W. E. CLYDE TODD, *Beaver, Beaver Co., Pa.*

The English Sparrow (*Passer domesticus*) in Nassau, N. P.—Several examples of this species were obtained by my collectors in Nassau during the past winter. Although introduced many years ago, it is not abundant and does not seem to have extended its range to any of the neighboring islands.—CHARLES B. CORY, *Boston, Mass.*

Former Occurrence of *Spiza americana* in Northern New Jersey.—Mr. C. S. Galbraith informs me that forty years ago the Dickcissel was a common summer resident near his home at Hoboken, N. J., a fact which seems of sufficient importance to be placed on record.—FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

An Abnormal Specimen of the Nonpareil (*Passerina ciris*).—I shot an adult male Nonpareil on June 24, of this year, which has the entire throat bright yellow. The ring around the eyes is also yellow, instead of red. The rest of the plumage is normal. The bird was shot at Mount Pleasant, S. C. This is the first specimen I have ever seen marked in that manner.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

The Cedar Waxwing and American Dipper in Costa Rica.—April 11, 1891, Dr. Don Anastasio Alfaro secured two fine specimens, male and female, of *Ampelis cedrorum*, taken at the Volcano of Irazú at an elevation of about 6000 feet. I have compared the specimens carefully with examples from eastern North America and can detect no difference. The female has the wax tips to the secondaries. This capture extends the known range of the species several hundred miles southward.

I am also able to extend the known habitat of the American Dipper (*Cinclus mexicanus*) south from Guatamala to Costa Rica. There has been an example in the Museo Nacional for a long time, labeled *C. ardesiacus*, but only a few days ago, when compared with a couple of specimens of true *C. ardesiacus* was the mistake noted. I can also now add that *C. mexicanus* is a comparatively common bird along many of the mountain streams in Costa Rica. Its congener, *C. ardesiacus*, I consider rare.—GEORGE K. CHERRIE, *Museo Nacional, San José, Costa Rica.*

Another Massachusetts Record for the Mockingbird.—A specimen of *Mimus polyglottos* (Linn.) was shot by the writer at Great Island, near Hyannis, Mass., on August 30, 1891. The bird is in young plumage, still showing the spotted breast.—CHARLES B. CORY, *Boston, Mass.*

Geothlypis philadelphia Breeding in Western New York.—In my list of 'Birds of Niagara County, N. Y.', published in 'Forest and Stream,' Sept., 1889, I intimated that the Mourning Warbler bred in Niagara County. On June 13 last my suspicions were confirmed by finding a nest and eggs of this species. I was passing through a heavily timbered wet wood, and about ten rods from the western border I came to a small opening, three to four rods square, when, in about the centre of this opening, a bird flew from under my feet into the adjoining thicket. Glancing toward my feet I saw its nest and eggs, and on adjusting my field glass I saw that the bird was a female *G. philadelphia* and immediately shot it. The nest was placed in the centre of a clump of cowslips. The nest is composed of coarse grass and leaves on the outside, with fine grass inside and lined with hair. Measurement outside, 3 in. deep, 3.50 in. across; inside, 1.75 in. deep and 1.75 across. Eggs white, with a wreath of reddish brown and lilac on the large end, and finely blotched with brown over the whole surface. Measurements, $.76 \times .51$, $.77 \times .50$, and $.78 \times .50$. I have the nest and eggs, and the bird mounted, which, with a fine adult male specimen received May 23, I consider a valuable addition to my collection. These specimens were taken in the same woods where I found *Dendroica cerulea* breeding in 1888.—J. L. DAVISON, *Lockport, Niagara Co., N. Y.*

Breeding of the Mourning Warbler in Ontario County, N. Y.—On June 26, 1891, I was passing through a damp, low thicket when an outcry from a small bird drew my attention to it, it proving to be a female Mourning Warbler (*Geothlypis philadelphia*). Her cries soon brought the male with a beak full of small green worms, evidently collected for the young, but on seeing me he quickly devoured them that he might better join in the remonstrance against my presence. After a short search I found two young birds, nearly grown and fully feathered, but unable to fly. I caught one and held it for some time, thus bringing the parents within a foot of my hand and permitting of the fullest identification. I could have shot them but forbore to do so hoping that they might breed there the coming season. This is the first time I have known this species to breed in this vicinity.—B. S. BOWDISH, *Phelps, N. Y.*

Yellow Palm Warbler (*Dendroica palmarum hypochrysea*).—On May 7, 1891, I shot a male specimen of this Warbler, the first one I have come across here in ten years' collecting.—ERNEST D. WINTLE, *Montreal, Canada.*

Bird Notes from Clatsop County, Oregon.—*Hesperocichla nævia*. OREGON ROBIN, VARIED ROBIN.—Common about Astoria and the low lands in winter, breeding back in the heavy timber on the hills. I found a nest of this species nearly completed April 27. The nest was in a small hem-

lock, about four feet up. The locality was on high land, and heavily timbered.

Merula migratoria propinqua. WESTERN ROBIN.—Common. Resident in the bottom lands and valleys. Summer resident in the hills.

Cinclus mexicanus. AMERICAN DIPPER. — This bird, of peculiar habits and flight, as well as song, was observed quite often in the winter and spring along the creeks in the hills. I am confident it breeds there, but I seldom saw it through the summer.

Regulus satrapa olivaceus.—Common resident.

Parus rufescens.—Common resident in the hills.

Troglodytes hiemalis pacificus.—Very common resident, and a profuse singer. I found many nests of this species, and saw young birds, but failed to find a nest containing eggs. For a building site, they seem to have a special liking for the under side of an old log that lies up from the ground.

Cyanocitta stelleri.—Steller's Jay is a common resident. I found a nest May 13 with eggs nearly ready to hatch.

Perisoreus obscurus. OREGON JAY. MEATHAWK.—A common resident. They show little fear about camp in winter, if there is any meat they can get at. I found a nest May 8, with four eggs. It was about ten feet from the ground in a small hemlock in thick woods, and was made of dead twigs, lined with moss and feathers.—C. W. SWALLOW, *Corvallis, Oregon*.

Notes on the Mniotiltidæ of Western Pennsylvania.—*Helmitherus vermivorus*. WORM-EATING WARBLER.—First detected in Beaver County on August 16, 1888, when two specimens were secured out of three seen, probably all belonging to the same family. I found it tolerably common in Butler and Armstrong Counties during my stay there in May and June, 1889, but did not succeed in taking any nests. In 1890, however, on May 28, I found the nest of a pair in a patch of woods about five miles west of the town of Beaver. This spring I have found the species in small numbers in a particularly luxuriant piece of woodland just across the Ohio River from Beaver, where I have no doubt it breeds also. Its note at this season is a trill almost exactly the same as that given by the Chipping Sparrow on its first arrival.

Helminthophila pinus. BLUE-WINGED YELLOW WARBLER. — This species is unaccountably rare in this section, the only specimen which has ever come under my notice being one taken May 2, 1891. I regard it as our rarest Warbler, and of course from my own observations cannot say as to its being a summer resident, though Dr. B. H. Warren mentions having seen it in this County in summer (*Birds of Pennsylvania*, p. 276).

Helminthophila chrysoptera. GOLDEN-WINGED WARBLER. — A rather common migrant, and occurs also as a summer resident in Beaver, Butler, and Armstrong Counties, being somewhat more abundant in the latter. Repeated efforts have been made to discover the nest, but so far without success, though I have seen the old and young together in July.

Helminthophila peregrina. TENNESSEE WARBLER. — Occurs regularly in the fall, and occasionally in the spring, having been quite common this last season from May 9 to May 19.

Compsothlypis americana. PARULA WARBLER. — In Butler and Armstrong Counties I found this species to be a common breeder. I did not actually find a nest, but saw a female in the act of gathering nesting material. In Beaver County I have found it a tolerably common spring migrant, and have lately (June 2, 1891) taken a specimen which was doubtless nesting at the time.

Dendroica tigrina. CAPE MAY WARBLER. — Transient visitant; rare; three specimens have come under my observation, bearing dates respectively of Sept. 14, 1889, Sept. 24, 1889, and May 13, 1891.

Dendroica caerulescens. BLACK-THROATED BLUE WARBLER. — Has been taken as early in the fall as August 28 (1889).

Dendroica maculosa. BLACK-AND-YELLOW WARBLER. — Reference to the nesting of this species has already been made in a former number of 'The Auk' (Vol. VIII, No. 1, p. 116).

Dendroica caerulea. CERULEAN WARBLER. — For an account of the Cerulean Warbler see 'The Auk' Vol. VIII, No. 2, p. 238.

Dendroica pensylvanica. CHESTNUT-SIDED WARBLER. — An abundant migrant in Beaver County, spring and fall. I have taken and seen immature birds in August (August 18, 1888, and August 24, 1889), which would seem to indicate that it breeds a little farther north. In Butler and Armstrong Counties, however, the case is very different; there, every patch of hazel thicket has its pair of Chestnut-sided Warblers, or, if extensive, its several pairs, the gay and sprightly male ever prominent on its outskirts or on some shrub in its midst, constantly uttering his short but sweetly modulated song. Notwithstanding this clue, their nests are difficult to find; after many vain searches I at last succeeded in finding one (June 3, 1889) containing four highly incubated eggs.

Dendroica castanea. BAY-BREASTED WARBLER. — Rare migrant, especially so in the spring.

Dendroica blackburniae. BLACKBURNIAN WARBLER. — Common migrant in Beaver County. In Butler County I saw a single male June 4, 1889; this indicates that they breed there.

Dendroica virens. BLACK-THROATED GREEN WARBLER. — A common migrant in Beaver County; in Armstrong and Butler Counties a common summer resident, nesting in hemlock and pine forests, where the peculiar notes of the male are constantly heard.

Dendroica discolor. PRAIRIE WARBLER. — Transient visitant; rare; two individuals noted in the fall of 1890.

Geothlypis formosa. KENTUCKY WARBLER. — A rare summer resident; three seen August 5, 1888; a pair seen at same place June 24, 1889. Also one seen in fall migration September 13, 1888.

Geothlypis philadelphia. MOURNING WARBLER. — See note in 'The Auk' Vol. VIII, No. 2, p. 240.

Icteria virens. YELLOW-BREASTED CHAT. — Common summer resident in Beaver County; not noticed in Butler and Armstrong Counties.

Sylvania mitrata. HOODED WARBLER.—This species I have found to be a rare transient visitant (though probably it breeds), having noted individuals September 13 and 25, 1890, and May 2, 1891.

Sylvania canadensis. CANADIAN WARBLER.—Found in Beaver County as a migrant only, but occurs in Butler and Armstrong Counties as a summer resident, nesting in thickets, especially those along the banks of streams.

Setophaga ruticilla. AMERICAN REDSTART. — Abundant summer resident in Beaver County; in Butler and Armstrong Counties conspicuous for its apparent entire absence.

Unless otherwise specified, the quotations given above refer to Beaver County only. Many of them are interesting as showing the peculiar faunal position of not only the western part of Pennsylvania as a whole, but also of its different sections. The notes for Butler and Armstrong Counties show a breeding range for some species extending much further south than has been heretofore generally ascribed in a non-mountainous region. Leasuresville, Butler County, near which my observations were made, is almost exactly in the same latitude as Beaver, Beaver County, and is, moreover, as shown by the Geological Survey report, only slightly over one hundred feet higher. The character of the country is, however, very different, and this has evidently much to do with the difference in the respective avifaunas of the two sections. What makes the problem more difficult of solution is the fact that in both localities relatively northern and relatively southern species (not all Warblers) are both found, as for instance in Butler and Armstrong Counties, *Dendroica maculosa*, *D. pennsylvanica*, *D. virens*, *Sylvania canadensis*, etc., occur, together with such relatively southern forms as *Helmitherus vermivorus*, *Helminthophila chrysoptera* (also *Empidonax acadicus*). A comparison of the whole avifauna of each locality, however, shows that Beaver County is, on the whole, the more southern (relatively) of the two.—W. E. CLYDE TODD, Beaver, Beaver Co., Pa.

Note regarding the Islands of Maraguana and Samana, Bahamas.—While in the Bahama Islands last winter I had several conversations with people who were well acquainted with the islands of Samana and Maraguana. These islands have not been visited by any naturalist, or if so nothing has been published regarding them. I was told that a Parrot occurred on Maraguana and Acklin Islands, and a Crow was sometimes seen on the former island. A peculiar large rat is claimed to occur on Maraguana in abundance. At Samana a Woodpecker occurs, which, if not *Sphyrapicus varius*, would probably prove of much interest. None of my collectors have ever visited these islands, although having positive orders to do so, they having been always prevented by illness or bad weather. I am informed that a regular monthly steamer is to be run after July, 1891, between New Providence and Inagua, touching at a number of the intermediate islands. With such easy communication there should be but little difficulty in obtaining collections from most of the islands.—CHARLES B. CORY, Boston, Mass.

NOTES AND NEWS.

THE PLATE accompanying the present number of 'The Auk' illustrates two species of Screech Owl from Mexico, described by Mr. William Brewster in 'The Auk' for January, 1888 (Vol. V, pp. 87, 88), and now for the first time figured. Both species are based on specimens collected by Mr. R. R. McLeod in the Province of Chihuahua.

DR. JOHN I. NORTHPROP, an Associate Member of the A. O. U., and a Fellow in Geology at the School of Mines, Columbia College, died June 26, 1891, at the age of twenty-nine years. His tragic ending was peculiarly sad, his death resulting from burns caused by an explosion of alcohol in the cellar of the School of Mines on the day preceding his death. Dr. Northrop was born in New York City, Oct. 12, 1861. He received his early education at the Columbia Grammar School, whence he entered the Columbia College School of Mines in 1880, graduating in 1884 with the degree of a Mining Engineer, and in 1887, after a further course of study, received the degree of Doctor of Philosophy. He then, as Fellow in Geology at the School of Mines, became Assistant to Prof. J. S. Newberry. His special line of study, however, was in the line of Zoölogy, and he had recently received leave of absence from his college duties to pursue a special course of study abroad with a view to promotion to a higher position, which had already been offered him.

About a year preceding his death he married Miss Rich of the Normal School of New York City, and their wedding trip was a visit to the Bahamas to collect and study the fauna and flora of these islands. Both also attended the A. O. U. meeting held last year in Washington. Dr. Northrop's paper on the birds of Andros Island, read before the Union and afterwards published in 'The Auk' (Vol. VIII, pp. 64-80, with a colored plate of *Icterus northropi*), being one of the incidental results of the trip. He also read, in October, 1890, a paper before the New York Academy of Sciences on the Geology of Andros Island (Trans. N. Y. Acad. Sci., X, pp. 4-23), and had in manuscript at the time of his death several extended papers on the invertebrates of the Bahamas, to which he gave special attention. Dr. Northrop gave promise of eminence in his chosen field, and his bright prospects render his untimely death exceptionally sad, and a severe shock to his many scientific and other friends to whom he had personally endeared himself.

AUGUST VON PELZELN, an Honorary Member of the A. O. U., died at Vienna, Sept. 2, 1891, at the age of 67 years. A notice of the life and works of this long-eminent German ornithologist is necessarily deferred till a later number of 'The Auk.'

THE NINTH CONGRESS of the American Ornithologists' Union will be held at the American Museum of Natural History, New York City, November 17-19, 1891. It is hoped that the regular increase in attendance

of both Active and Associate Members shown at previous meetings will be sustained at the present reunion. The time devoted to routine business will be reduced to the minimum, and the presentation and discussion of scientific papers be made the object of the meeting. It is requested that all members having papers to present send the titles of the same to the Secretary, Mr. John H. Sage, Portland, Conn., at least one week prior to the date on which the Congress convenes. This will permit of the proper arrangement of subjects and preparation of a programme, a plan which has proved to be of great utility and convenience.

Special features of the meeting will be an exhibition of the original drawings made by Wolf to illustrate Mr. Elliot's sumptuous ornithological works, and a stereopticon exhibition of lantern slides portraying living birds. The co-operation of members in adding to the success of this last-named exhibit is earnestly requested. Should any member having such slides be unable to attend the meeting, he will confer a favor by forwarding them, with an explanation of their character, or the manner in which the pictures were taken, to the President, Mr. D. G. Elliot, American Museum of Natural History, New York City. They will be promptly returned at the close of the session.

THE SECOND International Ornithological Congress, held at Budapest, May 17-27, 1891, was attended by about two hundred ornithologists, mostly from Germany, Austria, and Hungary. England had two representatives and America two, the latter being Dr. Arthur P. Chadbourne and Dr. Louis B. Bishop, Dr. Chadbourne being the accredited delegate of the A. O. U. to the Congress.

The work of the Congress was divided into four sections: (1) Systematic Ornithology and Avian Anatomy; (2) Avi-Geography and Migration; (3) Biology and Oölogy; (4) Economic Ornithology. The special reports and communications to the different sections will soon be published, a number of them having already appeared.

A Code of Rules for Zoölogical Nomenclature, essentially based on the A. O. U. Code of 1886, caused considerable discussion, but was finally adopted, and henceforth "a local race which differs so much in color, form, or proportions, that it cannot be surely identified without material for comparison or a knowledge of the locality where the specimen was found, will *not* be described as a species under a binomial name, but as a subspecies, *by the addition of a third name* to that of the species from which it was derived." The abbreviation '*var.*' is only to be used for 'freaks,' while '*monstr.*' (monstrosity) will be used to indicate malformation in structure.

After adjournment the Hungarian Committee arranged several extended excursions to enable those who could do so to see the most characteristic and interesting local fauna.

LITTLE, BROWN, AND COMPANY, Boston, are about to publish a popular handbook of the ornithology of the United States and Canada, by Mr. Montague Chamberlain, based on Nuttall's well-known '*Manual.*' It will

form two octavo volumes, with colored frontispieces and numerous illustrations in the text. The publishers' announcement states that it will retain everything of value in the original work, including all of Nuttall's delightful descriptions of bird-life, only the obsolete or erroneous portions being omitted. It will include also an account of all of the species and subspecies described since Nuttall wrote, bringing the general subject down to date, not only in this respect, but as regards nomenclature and descriptions, all of the latter being rewritten by Mr. Chamberlain, in simple, well-known and untechnical terms. The specimen pages before us give promise of a very attractive and useful handbook, filling a place of late unoccupied by any work of similar scope.

MR. P. L. JOUY, so well known for his ornithological work in Japan, sailed on October 1 for Mexico, to collect birds and mammals for the U. S. National Museum. His special field for the present will be in the Province of San Luis Potosi, which, so far as thorough field work is concerned, is practically new and very inviting ground. The results of Mr. Jouy's labors will hence be anticipated with interest.

DR. G. BAUR, of Clark University, Worcester, Mass., and Mr. C. J. Adams of Champaign, Ill., have just returned from a three months' exploration of the fauna and flora of the Galapagos Islands. On reaching Chatham Island—the only one of the group that can be said to be inhabited—a sloop was chartered and each of the islands visited. Special attention was given to the bird life, resulting in a collection of some 600 bird skins and numerous specimens in spirits. Among the species secured is a good series of the rare *Creagrus furcatus*, and several others not hitherto known from the Galapagos. The collection cannot fail to throw much light upon the ornithology of this peculiarly interesting group of islands.

THE TREASURER of the A. O. U. received December 5, 1890, an envelope postmarked "Paris, November 23, 1890." It contained a National Bank bill of the value of \$5.00, but did not give the name of the sender. The envelope bore the imprint of "Hotel Continental, 3 Rue Castiglione." Will the sender please send his name to the Treasurer.

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ERRATA.

- Page 120, line 14, for November 20 read November 2.
 " 162, " 28, " erythorothrax " erythrothorax.
 " 162, " 34, " Pipilo " Pipile.
 " 222, " 8, after maculatus " megalonyx.
 " 320, " 25, for Zema " Xema.
 " 354, " 26, " dominicensis " dominicus.

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